TECHNICAL GUIDE

YORK® Heating and Air Conditioning

PREDATOR® MAGNUM

ULTRA HIGH EFFICIENCY

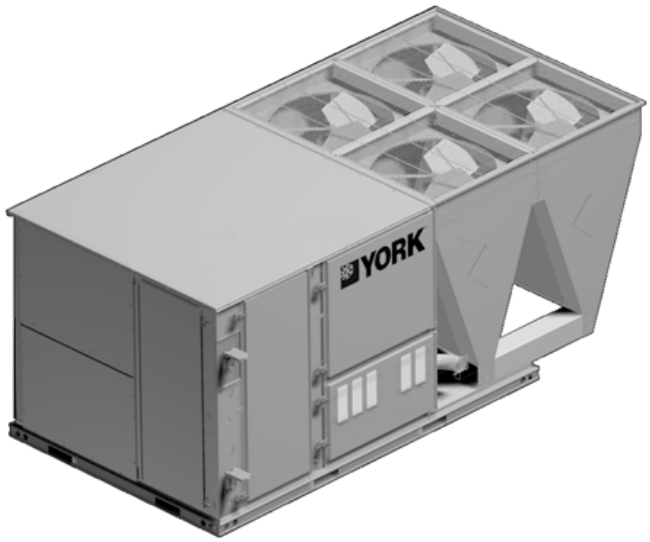
SINGLE PACKAGE AIR CONDITIONERS AND

SINGLE PACKAGE GAS/ELECTRIC UNITS

DJ 150

12-1/2 NOMINAL TONS

11.35 EER



DESCRIPTION

YORK® Predator® Magnum is a convertible single package unit with a common footprint cabinet and common roof curb for 12-1/2 ton models. All units have two compressors with independent refrigeration circuits to provide 2 stages of cooling. The units were designed for light commercial applications and can be easily installed on a roof curb, slab, or frame.

All Predator® Magnum units are self-contained and assembled on rigid full perimeter base rails allowing for 3-way forklift access and overhead rigging. Every unit is completely charged, wired, piped, and tested at the factory to provide a quick and easy field installation.

All units are convertible between side and down airflow. Independent economizer designs are used on side and down discharge applications, as well as all tonnage sizes.

Predator® Magnum units are available in the following configurations: cooling only, cooling with electric heat, and cooling with gas heat. Electric heaters are available as factory-installed options or field-installed accessories.

Tested in accordance with:

DESIGN CERTIFIED

C SA US

ARI PERFORMANCE CERTIFIED

ARI Standard 340/360
Commercial and Industrial Unitary
Air Conditioning Equipment

CSA CERTIFIED

FOR DISTRIBUTION USE ONLY - NOT TO BE USED AT POINT OF RETAIL SALE

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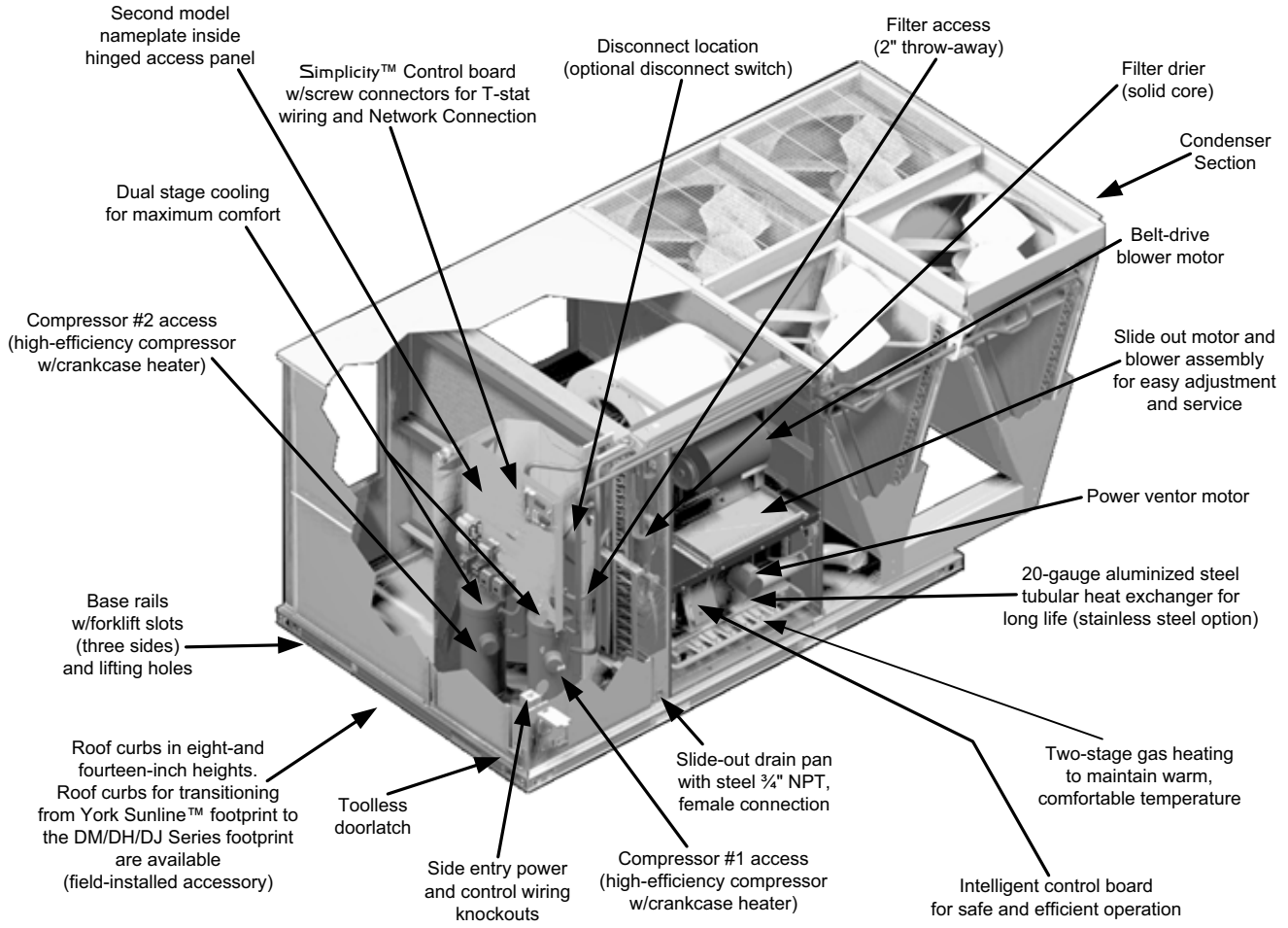
Second model nameplate inside hinged access panel
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Power ventor motor
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Base rails w/forklift slots (three sides) and lifting holes
Roof curbs in eight-and fourteen-inch heights. Roof curbs for transitioning from York Sunline™ footprint to the DM/DH/DJ Series footprint are available (field-installed accessory)
Toolless doorlatch
Side entry power and control wiring knockouts
Compressor #1 access (high-efficiency compressor w/crankcase heater)
Slide-out drain pan with steel ¾" NPT, female connection
Two-stage gas heating to maintain warm, comfortable temperature
Intelligent control board for safe and efficient operation

FIGURE 1 - PREDATOR® MAGNUM COMPONENT LOCATION

FEATURES

- **High Efficiency** – High efficiency units are rated at 11.35 EER. Gas/electric units have electronic spark ignition and power vented combustion with steady state efficiencies of 80%. These efficiencies meet or exceed all legislated minimum levels and provide low operating costs.
- **Service Friendly** – The Predator® Magnum incorporates a number of enhancements which improve serviceability.

  The motor and blower slide out of the unit as a common assembly. This facilitates greater access to all the indoor airflow components, thus simplifying maintenance and adjustment.

  Service time is reduced through the use of hinged, toolless panels. Such panels provide access to frequently inspected components and areas, including the control box, compressors, filters, indoor motor & blower, and the heating section. The panels are screwed in place at the factory to prevent access by children or other unauthorized persons. It is recommended that the panels be secured with screws once service is complete.

  Service windows have been placed in both condenser section walls. Rotation of the cover allows easy access to the condenser coils for cleaning or inspection.

  Both the unit control board and ignition control board utilize flash codes to aid in diagnosis of unit malfunctions. Unique alarm codes quickly identify the source of the unit alarm.

  All units use the same standard filter size. This standardization removes any confusion on which filter sizes are needed for replacement.

  The non-corrosive drain pan slides out of the unit to permit easy cleaning. The drain pan is accessed by removing the drain pan cover plate on the rear of the unit. Once the plate is removed, the drain pan slides out through the rear of the unit.

  All Predator® Magnum units have a second model nameplate located inside the control access door. This is to prevent deterioration of the nameplate through weathering.

- **Environmentally Aware** – For improved Indoor Air Quality, foil faced insulation is used exclusively throughout the units.
- **Balanced Heating** – The Predator® Magnum offers "Ultimate Heating Comfort" with a balance between 1st and 2nd stage gas heating. The first stage of a gas heat Predator® Magnum unit provides 60% of the heating capacity. Balanced heating allows the unit to better maintain desired temperatures.
- **Convertible Airflow Design** – The side duct openings are covered when they leave the factory. If a side supply/return is desired, the installer simply removes the two side duct covers from the outside of the unit and installs them over the down shot openings. No panel cutting is required. Convertible airflow design allows maximum field flexibility and minimum inventory.
- **System Protection** – Suction line freezestats are supplied on all units to protect against loss of charge and coil frosting when the economizer operates at low outdoor air temperatures while the compressors are running. Every unit has solid-core liquid line filter-driers and high and low-pressure switches. Internal compressor protection is standard on all compressors. Crankcase heaters are standard on reciprocating compressors. Scroll compressors do not require crankcase heaters. Phase monitors are standard on all units.
- **Advanced Controls** - Simplicity™ control boards have standardized a number of features previously available only as options or by utilizing additional controls.
  - **Low Ambient** - An integrated low-ambient control allows all units to operate in the cooling mode down to 0°F outdoor ambient without additional assistance. Optionally, the control board can be programmed to lockout the compressors when the outdoor air temperature is low or when free cooling is available.
  - **Anti-Short Cycle Protection** - To aid compressor life, an anti-short cycle delay is incorporated into the standard controls. Compressor reliability is further ensured by programmable minimum run times. For testing, the anti-short cycle delay can be temporarily overridden with the push of a button.
  - **Fan Delays** - Fan on and fan off delays are fully programmable. Furthermore, the heating and cooling fan delay times are independent of one another. All units are programmed with default values based upon their configuration of cooling and heat.
  - **Safety Monitoring** - The control board monitors the high and low-pressure switches, the freezestats, the gas valve, if applicable, and the temperature limit switch on gas and electric heat units. The unit control board will alarm on ignition failures, compressor lockouts and repeated limit switch trips.
  - **Nuisance Trip Protection and Strikes** - To prevent nuisance trouble calls, the control board uses a "three times, you're out" philosophy. The high and low-pressure switches and the freezestats must trip three times within two hours before the unit control board will lock out the associated compressor.
  - **On Board Diagnostics** - Each alarm will energize a trouble light on the thermostat, if so equipped, and flash an alarm code on the control board LED. Each high and low-pressure switch alarm as well as each freezestat alarm has its own flash code. The control board saves the five most recent alarms in memory, and these alarms can be reviewed at any time. Alarms and programmed values are retained through the loss of power.
- **Reliable** – From the beginning – All units undergo computer automated testing before they leave the factory. Units are tested for refrigerant charge and pressure, unit amperage, and 100% functionality. For the long term – All Predator® units are painted with a long lasting, powder paint that stands up over the life of the unit. The paint used has been proven by a 1000 hour salt spray test.
- **Flexible Placement** – All models and configurations share the same cabinet/footprint and thus the same roof curb. You have the flexibility to set one curb and choose the correct tonnage size and heating option after the internal loads have been determined.

  To further simplify planning and installation, Predator® Magnum cabinets are designed to fit your roof. With the optional roof curb, the unit ductwork is designed to fit around 24" on-center joists or between 48" on-center joists.

  The drain pan can be rotated to drain to either the front or the rear of the unit. Additionally, the drain pan can be fitted to drain through the roof curb. As it is sometimes difficult to have a level installation, the drain pan features a generous slope to ensure proper drainage.
- **Full Perimeter Base Rails** – The permanently attached base rails provide a solid foundation for the entire unit and protect the unit during shipment. The rails offer forklift access from 3 sides, and rigging holes are available so that an overhead crane can be used to place the units on a roof.
- **Easy Installation** – Gas and electric utility knockouts are supplied in the unit underside as well as the side of the unit. A clearly identified location is provided to mount a field supplied electrical disconnect switch. Utility connections can be made quickly and with a minimum amount of field labor.

  All units are shipped with 2" throw-away filters installed.
- **Wide Range of Indoor Airflows** – All indoor fan motors are belt-drive type providing maximum flexibility to handle most airflow requirements. For high static applications, factory installed alternate indoor fan motors are available. With the optional indoor fan motor, all units can supply nominal airflow at a minimum of 1.5" ESP.
- **Warranty** - All models include a 1-year limited warranty on the complete unit. Compressors and electric heater elements each carry a 5-year warranty. Aluminized steel and stainless steel tubular heat exchangers carry a 10-year warranty.

FACTORY INSTALLED OPTIONS

YORK® offers several equipment options factory installed, for the Predator® Magnum line.

- **Optional Factory Installed Economizers** - Predator units offer a variety of optional factory installed economizers with low leak dampers. The outdoor air enthalpy sensor enables economizer operation if the outdoor enthalpy is less than the setpoint of the economizer logic module. See Table 19 to determine the correct economizer for your application.
  - **Downflow Economizer** - **(With barometric relief)** - The economizer is provided with a single enthalpy input. The economizer is 2% low leakage type, and is shipped installed and wired. The installer needs only to assemble and mount the outdoor air hood (Provided). The economizer has spring return, fully modulating damper actuators and is capable of introducing up to 100% outdoor air. As the outdoor air intake dampers open, the return air dampers close. The changeover from mechanical refrigeration to economizer operation is regulated by the standard single enthalpy input. There is an optional input dual dry bulb available. To meet regulated air standards, the economizer control accepts an optional CO_2 input for demand ventilation. With single enthalpy input, the economizer control monitors outdoor air. The dual enthalpy kit provides a second input used to monitor the return air. With a dual input kit installed, the economizer control compares the values of the two enthalpy or temperature inputs and positions the dampers to provide the maximum efficiency possible.
  - **Horizontal Economizer** - **(Without barometric relief)** - All features of the downflow economizer exist except you must order the duct mount barometric relief separately. **You must order a 1EH0408 if you are installing a power exhaust. You can order a 1RD0411 Barometric Relief for horizontal flow economizers only.**
  - **BAS Ready Economizer -(With barometric relief)** - The economizer is provided with a Belimo actuator that requires a 0-10V DC input from an external source (i.e., field installed building automation system controller). Power exhaust options are available. The economizer is 2% low leakage type with spring return and fully modulating dampers capable of introducing up to 100% outside air. Also include 2" pleated filters.
  - **Slab Economizer for Energy Recovery Ventilators-(With barometric relief and Fresh Air Hood)** - The economizer is provided with a single enthalpy input. The economizer is 2% low leakage type, and is shipped installed and wired. The economizer has spring return, fully modulating damper actuators and is capable of introducing up to 100% outdoor air. As the outdoor air intake dampers open, the return air dampers close. The changeover from mechanical refrigeration to economizer operation is regulated by the standard single enthalpy input. There is an optional input dual dry bulb available. To meet regulated air standards, the economizer control accepts an optional CO_2 input for demand ventilation. With single enthalpy input, the economizer control monitors outdoor air. The dual enthalpy kit provides a second input used to monitor the return air. With a dual input kit installed, the economizer control compares the values of the two enthalpy or temperature inputs and positions the dampers to provide the maximum efficiency possible.
- **Power Exhaust (Downflow only)** - This accessory installs in the unit with a down flow economizer.
- **Motorized Outdoor Air Damper** - The motorized outdoor air damper includes a slide-in/plug-in damper assembly with an outdoor air hood and filters. The outdoor air dampers open to the preset position when the indoor fan motor is energized. The damper has a range of 0% to 100% outdoor air entry. Factory installed option or field installed accessory.
- **Alternate Indoor Blower Motor** - For applications with high static restrictions, units are offered with optional indoor motors that provide higher static output and/or higher airflow, depending upon the installer's needs.
- **Aluminized Steel Gas Heat Exchanger** - For applications in non-corrosive environments.
- **Stainless Steel Gas Heat Exchanger** - For applications in corrosive environments, this option provides a full stainless steel heat exchanger assembly.
- **Stainless Steel Drain Pan -** An optional rust-proof stainless steel drain pan is available to provide years of trouble-free operation in corrosive environments.
- **Electric Heaters** - The electric heaters range from 18kW to 54kW and are available in all the voltage options of the base units. All heaters are dual staged. All heaters are intended for single point power supply.
- **Disconnect Switch** - For gas heat units and cooling units with electric heat, an HACR breaker sized to the unit is provided. For cooling only units, a switch sized to the largest electric heat available for the particular unit is provided. Factory installed option only.
- **Convenience Outlet - (Non-Powered/Powered)** - This option locates a 120V single-phase GFCI outlet with cover, on the corner of the unit housing adjacent to the compressors. The "Non-powered" option requires the installer to provide the 120V single-phase power source and wiring. The "Powered" option is powered by a step-down transformer in the unit. Factory installed option only.
- **Smoke Detectors** - The smoke detectors stop operation of the unit by interrupting power to the control board if smoke is detected within the air compartment. Available for both the supply and/or return air.

⚠WARNING

Factory installed smoke detectors in the return air, may be subjected to freezing temperatures during "off" times due to out side air infiltration. These smoke detectors have an operational limit of 32 °F to 131°F. Smoke detectors installed in areas that could be out side those limitations will have to be moved to prevent having false alarms.

- **Phase Monitors** - Designed to prevent unit damage. The phase monitor will shut the unit down in an out-of phase condition. **(Standard on units with Scroll Compressors.)**
- **Coil Guard** - Customers can purchase a coil guard kit to protect the condenser coil from damage. Additionally, this kit stops animals and foreign objects from entering the space between the inner condenser coil and the main cabinet. This is not a hail guard kit.
- **Dirty Filter Switch** - This kit includes a differential pressure switch that energizes the fault light on the unit thermostat, indicating that there is an abnormally high pressure drop across the filters. Factory installed option or field installed accessory.
- **Technicoat Condenser Coils** - The condenser coils are coated with a phenolic coating for protection against corrosion due to harsh environments.
- **Technicoat Evaporator Coil** - The evaporator coils are coated with a phenolic coating for protection against corrosion due to harsh environments.
- **BAS - Building Automation System Controls Simplicity™ Intelli-Comfort™ Control -** The York® Simplicity™ Intelli-Comfort™ control is factory installed. It includes a supply air sensor, a return air sensor, and an outside air sensor. There are provisions for a field installed dirty filter indicator switch, an air-proving switch, an Outside Air Humidity sensor, a Return Air Humidity sensor, an Inside IAQ sensor, and an Outside Air IAQ sensor. Construction mode operation, 365-day real time clock with 7 day programming plus holiday scheduling is built-in. Two different modes of demand ventilation are achieved through the Intelli-Comfort™ using CO_2 sensors. It uses an inside CO_2 sensor to perform Demand Ventilation. It can also use an Outside CO_2 sensor to perform Differential Demand Ventilation. It uses a Patented Comfort Ventilation algorithm to provide comfortable ventilation air temperature. The patented economizer-loading algorithm will protect the equipment when harsh operating conditions exist. Humidity in the occupied space or return duct can be monitored and controlled via humidity sensors and the on-board connection for hot gas re-heat system. It uses the Intelli-Start™ algorithm to maximize energy savings by recovering the building from the Unoccupied Setpoints to the Occupied Setpoints just in time for the Occupied Time Period to begin. The Simplicity™ Intelli-Comfort™ balances space temperature, ventilation air temperature, CO_2 and humidity for ultimate comfort.
- **Simplicity™ Intelli-Comfort™ with ModLINC Control -** The York® Simplicity™ Intelli-Comfort™ with ModLINC control is factory installed. It includes all the features of the Intelli-Comfort™ control with an additional control to translate communications from MODBUS to the BACnet MSTP protocol.
- **Novar® BAS Control -** The Novar® ETC-3 building automation system controller is factory installed. Incudes supply air sensor, return air sensor, dirty filter indicator switch, and air proving switch.
- **Johnson Controls BAS Control -** The Johnson Control YK-UNT-1126 building automation system controller is factory installed. Includes supply air sensor, return air sensor, dirty filter indicator switch, and air proving switch.
- **CPC BAS Control -** The Computer Process Controls Model 810-3060 ARTC Advanced Rooftop building automation system controller is factory installed. Includes supply air sensor, return air sensor, dirty filter indicator switch and air proving switch.
- **Honeywell BAS Control -** The Honeywell W7750C building automation system controller is factory installed. Includes air supply sensor, return air sensor, dirty filter indicator switch, and air proving switch.
- **York Commercial Comfort System (YCCS) -** Provides rooftop system integration for YCCS single zone and change-over bypass systems.

FIELD INSTALLED ACCESSORIES

YORK® offers several equipment accessories for field installation, for the Predator® Magnum line.

- **Downflow Economizer** - **(With barometric relief)** - The economizer is provided with a single enthalpy input. The economizer is 2% low leakage type. The economizer has spring return, fully modulating damper actuators and is capable of introducing up to 100% outdoor air. As the outdoor air intake dampers open, the return air dampers close. The changeover from mechanical refrigeration to economizer operation is regulated by the standard single enthalpy input. There is an optional input dual dry bulb available. To meet regulated air standards, the economizer control accepts an optional CO_2 input for demand ventilation. With single enthalpy input, the economizer control monitors outdoor air. The dual enthalpy kit provides a second input used to monitor the return air. With a dual input kit installed, the economizer control compares the values of the two enthalpy or temperature inputs and positions the dampers to provide the maximum efficiency possible
- **Horizontal Economizer** - **(Without barometric relief)** - All features of the downflow economizer exist except you must order the duct mount barometric relief separately. **You must order a 1EH0408 if you are installing a power exhaust. You can order a 1RD0411 Barometric Relief for horizontal flow economizer.**
- **Slab Economizer for Energy Recovery Ventilator**- **(Without barometric relief or Fresh Air Hood)** - The economizer is provided with a single enthalpy input. The economizer is 2% low leakage type. The economizer has spring return, fully modulating damper actuators and is capable of introducing up to 100% outdoor air. As the outdoor air intake dampers open, the return air dampers close. The changeover from mechanical refrigeration to economizer operation is regulated by the standard single enthalpy input. There is an optional input dual dry bulb available. To meet regulated air standards, the economizer control accepts an optional CO_2 input for demand

ventilation. With single enthalpy input, the economizer control monitors outdoor air. The dual enthalpy kit provides a second input used to monitor the return air. With a dual input kit installed, the economizer control compares the values of the two enthalpy or temperature inputs and positions the dampers to provide the maximum efficiency possible.

You can order 1EH0409 Barometric Relief/FA Hood for field installations without an ERV.

- **Dual Enthalpy Control, Accessory** - This kit contains the required components to convert a single enthalpy economizer to dual enthalpy.
- **Barometric Relief Damper** - Zero to 100% capacity barometric relief dampers for use with horizontal flow, or field installed slab economizers.
- **Power Exhaust** - This accessory installs in the unit with a down flow economizer. Power exhaust plugs into the connector in the unit bulkhead. **You must purchase 1EH0408 barometric relief when applying to a horizontal flow application.**
- **Manual Outdoor Air Damper** - Like the motorized outdoor air damper, each manual outdoor air damper includes a slide-in damper assembly with an outdoor air hood and filters. Customers have a choice of dampers with ranges of 0% to 100% or 0% to 35% outdoor air entry.
- **Motorized Outdoor Air Damper** - The motorized outdoor air damper includes a slide-in/plug-in damper assembly with an outdoor air hood and filters. The outdoor air dampers open to the preset position when the indoor fan motor is energized. The damper has a range of 0% to 100% outdoor air entry. Factory installed option or field installed accessory.
- **Smoke Detectors** - The smoke detectors stop operation of the unit by interrupting power to the control board if smoke is detected within the air compartment.
- **CO_2 Sensor** - Senses CO_2 levels and automatically overrides the economizer when levels rise above the preset limits.
- **Dirty Filter Switch** - This kit includes a differential pressure switch that energizes the fault light on the unit thermostat, indicating that there is an abnormally high pressure drop across the filters.
- **Coil Guard -** Field installed decorative wire coil guard.
- **Hail Guard** - This kit includes a sloped hood which installs over the outside condenser coil and prevents damage to the coil fins from hail strikes. Field installed accessory only.
- **Flue Exhaust Extension Kit** - In locations with wind or weather conditions which may interfere with proper exhausting of furnace combustion products, this kit can be installed to prevent the flue exhaust from entering nearby fresh air intakes.
- **-60°F Gas Heat Kit** - For installations which require gas heat units to perform in low ambient temperatures, a gas section heating kit is available. This kit provides electric heat in the gas heat controls section to ensure the gas valve and controls will continue to function properly at extremely low temperatures.
- **Gas Heat High Altitude Kit** - This kit converts a gas heat unit to operate at high altitudes, 2,000 to 6,000 feet. Conversion kits are available for natural gas and propane.
- **Gas Heat Propane Conversion Kit** - This kit converts a gas-fired heater from natural gas to propane. It contains the main burner orifices and gas valve replacement springs.
- **Gas Piping Kit** - Contains pipe nipples, fittings and gas cock required for gas supply connection with external shut off.
- **Electric Heaters** - The electric heaters range from 18 kW to 54kW and are available in all the voltage options of the base units. All heaters are dual staged. Cooling units include an adapter panel for easy installation of the electric heaters. Necessary hardware and connectors are included with the heaters. All heaters are intended for single point power supply.
- **Low Limit / Compressor Lockout Kit**
  1. **Compressor Lockout (CLO):** To prevent mechanical (compressorized) operation of the unit during cold outdoor conditions where there is a risk of returning liquid refrigerant back to the compressors.
  2. **Low Limit Control (LLC):** To prevent the supply air from dropping below a specified setpoint by utilizing the units first stage heating means when there is a demand for cooling during cold outside conditions.
- **Metal Frame Filter Kit -** Metal frame with polyester filter medium.
- **Permanent Filters** - Permanent filters are available.
- **Roof Curbs** - The roof curbs have insulated decks and are shipped disassembled The roof curbs are available in 8” and 14” heights. For applications with security concerns, burglar bars are available for the duct openings of the roof curbs.
- **Roof Curb Transition -** Single Piece Adapter (10” High) - Roof curbs for transitioning from Sunline™ units to Predator® Magnum. Fits 7.5 to 12.5 Sunline™ roof curbs only.
- **Burglar Bars** - Mount in the supply and return openings to prevent entry into the duct work.
- **Thermostat** - The units are designed to operate with 24-volt electronic and electro-mechanical thermostats. All units (with or without an economizer) operate with two-stage heat/two-stage cool or two-stage cooling only thermostats, depending upon unit configuration.

TABLE 1: ACCESSORIES

Part Number	Description	Weight
1RC0470	Roof Curb, 8" Height	-
1RC0471	Roof Curb, 14" Height	-
1RC0472	Roof Curb, Transition (7.5 T through 12.5 T)	-
1BD0408	Burglar Bars, Downflow	-
2TP04521825	Electric Heat 18kW 230V	-
2TP04522425	Electric Heat 24kW 230V	-
2TP04523625	Electric Heat 36kW 230V	-
2TP04525425	Electric Heat 54kW 230V	-
2TP04521846	Electric Heat 18kW 460V	-
2TP04522446	Electric Heat 24kW 460V	-
2TP04523646	Electric Heat 36kW 460V	-
2TP04525446	Electric Heat 54kW 460V	-
2TP04521858	Electric Heat 18kW 575V	-
2TP04522458	Electric Heat 24kW 575V	-
2TP04523658	Electric Heat 36kW 575V	-
2TP04525458	Electric Heat 54kW 575V	-
1FA0411	Manual Outside Air Damper 0-35%, Downflow (Incl. Hood, Damper & Filters, No Barometric Relief)	-
1FA0412	Manual Outside Air Damper 0-100%, Downflow (Incl. Hood, Damper & Filters, No Barometric Relief)	-
2MD04702724	Motorized Damper, Downflow (Incl. Hood, Damper & Filter, no Barometric Relief)	-
2MD04703324	Motorized Damper, Horizontal (Incl. Hood, Damper & Filter, no Barometric Relief)	
2EE04705024	Economizer, Downflow (Incl. Barometric Relief & All Hoods)	124 lbs.
2EE04705124	Economizer, Horizontal (Incl. Dampers & Hoods, no Barometric Relief)	97 lbs.
2EE04705224	Economizer, Slab, Downflow (Incl. Dampers only no Hoods or Barometric Relief)	
2PE04703225	Power Exhaust, Downflow, 230V (For Units with Economizer only)	-
2PE04703246	Power Exhaust, Downflow, 460V (For Units with Economizer only)	-
2PE04703258	Power Exhaust, Downflow, 580V (For Units with Economizer only)	-
2EC04700924	Dual Enthalpy Control (Use with Single Enthalpy Economizer)	-
1EH0407	Hood Kit, Downflow Economizer (Included with all Downflow Economizers)	
1RD0411	Barometric Relief Kit, Ductmount for Horizontal Application (Incl. Damper & Hood)	
1EH0408	Barometric Relief Kit, Ductmount for Horizontal Application w/Power Exhaust (Incl. Damper & Hood)	25 lbs.
1EH0409	Barometric Relief / Hood Kit, for Field Installed Slab Econ. w/o ERV (Incl. Barometric Relief & FA Hood)	-
2AQ04700424	CO2 Detector Unit Mount	-
2AQ04700324	CO2 Detector Space Mount	-
2SD04700424	Smoke Detector, Supply or Return (Return Not Available with Horizontal Economizer)	-
2MK04700624	Low Limit / Compressor Lockout Kit	
1CG0424	Coil Guard (Electric / Electric & HP models)	-
1CG0425	Coil Guard (Gas / Electric models)	-
1HG0411	Hail Guard Kit	-
1GP0404	Gas Piping Kit	-
1NP0441	Propane Conversion Kit	-
1HA0442	High Altitude Kit for Natural Gas	-
1HA0443	High Altitude Kit for Propane	-
1FE0411	Flue Exhaust Extension Kit	-
2BC04700106	Gas Heat Kit, -60 deg F, 230V	-
2BC04700151	Gas Heat Kit, -60 deg F, 460V	-
2BC04700154	Gas Heat Kit, -60 deg F, 575V	-
1FL0402	Permanent Filter Kit	-
2DF0401	Dirty Filter Switch	-
1FF0410	Filter Frame Kit, Metal	-

NOMENCLATURE

12.5 Ton Model Number Nomenclature

D	J	150	N15	A	2	A	AA	4	0	1	2	4	A

Product Category
D = A/C, Single Pkg., R-22

Product Identifier
J = 12.5 Ton 11.3 EER A/C

Nominal Cooling Capacity
150 = 12.5 Ton

Heat Type and Nominal Heat Capacity
C00 = Cooling Only. No heat installed

Gas Heat Options
N15 = 150 MBH Output Aluminized Steel
N20 = 200 MBH Output Aluminized Steel
S15 = 150 MBH Output Stainless Steel
S20 = 200 MBH Output Stainless Steel

Electric Heat Options
E18 = 18 KW
E24 = 24 KW
E36 = 36 KW
E54 = 54 KW

Airflow
A = Std. Motor
B = Std. Motor/Econo./Barometric Relief (Downflow Only)
C = Std. Motor/Econo./Power Exhaust (Downflow Only)
D = Std. Motor/Motorized Damper (Downflow Only)
E = Std. Motor/Horizontal Economizer (No Baro.)
F = Std. Motor/Slab Econo./Power Exhaust (Downflow Only)
G = Std. Motor/Slab Econo./Barometric Relief (Downflow Only)
N = Hi Static Mtr.
P = Hi Static Mtr./Econo./Barometric Relief (Downflow Only)
Q = Hi Static Mtr./Econo./Power Exhaust (Downflow Only)
R = Hi Static Mtr./Motorized Damper (Downflow Only)
S = Hi Static Mtr./Horizontal Economizer (No Baro.)
T = Hi Static Mtr./Slab Econo./Power Exhaust (Downflow Only)
U = Hi Static Mtr./Slab Econo./Barometric Relief (Downflow only)

Voltage
2 = 208/230-3-60
4 = 460-3-60
5 = 575-3-60

Installation Options
A = No Options Installed
B = Option 1
C = Option 2
D = Options 1 & 2
E = Option 3
F = Option 4
G = Options 1 & 3
H = Options 1 & 4
J = Options 1, 2 & 3
K = Options 1, 2, & 4
L = Options 1,3 & 4
M = Options 1, 2, 3, & 4
N = Options 2 & 3
P = Options 2 & 4
Q = Options 2, 3, & 4
R = Options 3 & 4
S = Option 5
T = Options 1 & 5
U = Options 1, 3, & 5
V = Options 1, 4, & 5
W = Options 1, 3, 4, & 5
X = Options 3 & 5
Y = Options 4 & 5
Z = Options 3, 4 & 5

Options
1 = Disconnect
2 = Non-Pwr'd Conv. Outlet
3 = Smoke Detector S.A.
4 = Smoke Detector R.A.
5 = Pwr'd Conv. Outlet

Additional Options

AA = None	RC = Coil Guard, Shipping Bag & American Flag
AB = Phase Monitor	TA = Technicoat Condenser Coil
AC = Coil Guard	TJ = Technicoat Evaporator Coil
AD = Dirty Filter Switch	TS = Technicoat Evaporator & Condenser Coils
AE = Phase Monitor & Coil Guard	
AF = Phase Monitor & Dirty Filter Switch	
AG = Coil Guard & Dirty Filter Switch	
AH = Phase Monitor, Coil Guard & Dirty Filter Switch	

ZZ = If desired option combination is not listed above, ZZ will be assigned and configuration options will be located in digits 15-18.

Product Generation
4 = Fourth Generation

Configuration Options (not required for all units)
These four digits will not be assigned until a quote is requested, or an order placed.

- SS Drain Pan
- CPC Controller, DFS, APS
- Johnson Controller UNT 1126 (N2 protocol), DFS, APS
- Honeywell Controller, DFS, APS
- Novar Controller, DFS, APS
- Simplicity IntelliComfort Controller
- Simplicity IntelliComfort Controller w/ModLinc
- York Commercial Comfort System (YCCS) Rtu Controller
- 2" Pleated filters
- BAS Ready Unit with Belimo Economizer
- Shipping Bag
- Any Combination of Additional Options that Don't Have an Option Code Pre-assigned

Product Style
A = Style A
B = Style B
C = Style C

TABLE 2: PHYSICAL DATA

Component		Model DJ 150 (12-1/2)
Evaporator Blower	Blower, Centrifugal (Dia. X Wd. in.)	15 x 15
	Motor, Standard (HP)	3
	Motor, Optional (HP)	5
Evaporator Coil	Rows	4
	Fins per Inch	15
	Height (in.)	40
	Face Area ($ft.^2$ each)	13.2
Condenser Fan (4 per Unit)	Propeller Dia. (in., each)	24
	Motor (HP, each)	1/3
	CFM, Nominal (each)	3500
Condenser Coil (2 per unit)	Rows (each)	2
	Fins per Inch	15
	Height (in., each)	36
	Face Area ($ft.^2$ each)	11.88
Refrigerant Charge	System 1 (lb./oz.)	2/0
	System 2 (lb./oz.)	20/8
Compressors	Quantity	2
	Type	Scroll
Air Filters	Size (Wd. x Ht. x Thickness in.)	25x20x2
	Number Per Unit	4

TABLE 3: DJ 150 (12-1/2 TON) CAPACITY RATINGS

Size (Tons)	Model	Cooling Capacity ARI Ratings[1]			CFM	Sound Rating (dB)[2]	Nominal Electric Heat Capacity[3] (kW)	Gas Heat Capacity				Gas Line Size (in. OD)
		MBH	EER	IPLV				Input (MBH)	Output (MBH)	Seasonal Efficiency (%)	Temp. Rise (°F)	
150 (12-1/2)	Cooling Only	150	11.35	12.3	3750	86	-	-	-	-	-	-
	Electric Heat						18, 24, 36 54	-	-	-	-	-
	Gas Heat						-	180	144	80	10-40	3/4
	Gas Heat						-	240	192	80	25-55	3/4

1 Rated at 95°F ambient 80°F dry bulb and 67°F wet bulb.
2 Rated in accordance with ARI 270 standard.
3 See Table 8.

TABLE 4: UNIT VOLTAGE LIMITATIONS

POWER RATING	MIN.	MAX.
208/230-3-60	187	252
460-3-60	432	504
575-3-60	540	630

TABLE 5: DJ 150 (12 1/2 TON) COOLING CAPACITY

Air On Evap. Coil		Temperature of Air on Condenser Coil 85°F									Temperature of Air on Condenser Coil 95°F								
CFM	WB (°F)	Tot. Cap.[1] (MBH)	Tot. Input[2] (kW)	Sensible Capacity (MBH)[1] Return Dry Bulb (°F)							Tot. Cap.[1] (MBH)	Tot. Input[2] (kW)	Sensible Capacity (MBH)[1] Return Dry Bulb (°F)						
				86	83	80	77	74	71	68			86	83	80	77	74	71	68
3750	72	173	10.9	102	92	81	70	60	49	38	168	11.8	101	90	79	69	58	47	37
	67	160	10.6	127	116	105	95	84	73	63	154	11.6	124	114	103	92	81	71	60
	62	148	10.5	148	141	131	120	109	99	88	143	11.4	143	138	127	116	106	95	84
	57	147	10.5	147	144	133	123	112	101	91	141	11.5	141	137	126	116	105	94	84
4375	72	177	10.9	112	100	87	74	62	49	37	170	11.8	111	98	85	73	60	47	35
	67	163	10.7	138	126	113	101	88	75	63	156	11.7	136	123	110	98	85	72	60
	62	151	10.6	151	148	141	128	115	103	90	145	11.5	145	142	136	124	111	98	86
	57	150	10.5	150	149	143	131	118	106	93	143	11.5	143	141	136	123	110	98	85
5000	72	180	11.0	122	108	93	79	64	49	35	173	11.9	120	106	91	76	62	47	33
	67	167	10.7	150	136	121	107	92	77	63	158	11.8	147	132	118	103	89	74	60
	62	154	10.6	154	154	150	136	121	107	92	147	11.6	147	147	146	131	116	102	87
	57	154	10.6	154	154	154	139	124	110	95	145	11.6	145	145	145	130	116	101	87
5625	72	184	11.0	133	116	100	83	66	50	33	176	12.0	131	114	98	81	65	48	31
	67	170	10.8	162	146	129	113	96	80	63	161	11.8	155	143	127	110	93	77	60
	62	157	10.7	157	157	155	139	122	106	89	150	11.7	150	150	149	132	116	99	83
	57	157	10.6	157	157	157	140	123	107	90	147	11.7	147	147	147	131	114	98	81
6250	72	188	11.1	143	125	106	87	69	50	32	179	12.1	142	123	105	86	67	49	30
	67	173	10.8	173	156	138	119	101	82	63	164	11.9	164	154	135	117	98	79	61
	62	161	10.7	161	161	161	142	123	105	86	152	11.7	152	152	152	134	115	96	78
	57	160	10.6	160	160	160	141	122	104	85	150	11.8	150	150	150	131	113	94	75
		Temperature of Air on Condenser Coil 105°F									Temperature of Air on Condenser Coil 115°F								
3750	72	158	13.0	99	88	77	67	56	45	34	148	14.3	96	86	75	64	54	43	32
	67	145	12.9	120	110	99	88	78	67	56	136	14.2	116	106	95	84	74	63	52
	62	134	12.7	134	129	119	108	97	87	76	125	14.0	125	121	110	100	89	78	67
	57	134	12.8	134	130	119	109	98	87	77	128	14.2	128	123	112	102	91	80	70
4375	72	160	13.1	109	96	83	71	58	45	33	150	14.4	107	94	81	69	56	43	31
	67	147	13.0	132	119	107	94	81	69	56	138	14.2	128	116	103	90	78	65	52
	62	136	12.8	136	134	128	115	103	90	77	127	14.1	127	125	120	107	94	82	69
	57	136	12.9	136	134	129	116	103	91	78	130	14.2	130	127	122	109	97	84	71
5000	72	162	13.2	119	104	89	75	60	46	31	152	14.4	117	102	88	73	58	44	29
	67	149	13.0	144	129	114	100	85	71	56	140	14.3	140	126	111	96	82	67	53
	62	138	12.8	138	138	137	123	108	93	79	129	14.1	129	129	129	114	100	85	70
	57	138	12.9	138	138	138	124	109	94	80	131	14.3	131	131	131	117	102	88	73
5625	72	165	13.2	129	112	96	79	63	46	29	155	14.5	127	111	94	77	61	44	28
	67	152	13.1	149	139	123	106	90	73	56	143	14.3	143	135	119	102	86	69	53
	62	140	12.9	140	140	140	123	107	90	74	131	14.1	131	131	131	114	98	81	65
	57	141	13.0	141	141	141	124	107	91	74	134	14.3	134	134	134	117	100	84	67
6250	72	168	13.3	140	121	102	84	65	47	28	157	14.5	138	119	100	82	63	44	26
	67	154	13.1	154	150	131	113	94	75	57	145	14.3	145	145	127	108	90	71	53
	62	143	12.9	143	143	143	124	106	87	68	133	14.2	133	133	133	115	96	77	59
	57	143	13.0	143	143	143	124	106	87	68	136	14.3	136	136	136	117	99	80	61
		Temperature of Air on Condenser Coil 125°F																	
3750	72	137	15.6	94	83	73	62	51	41	30									
	67	127	15.5	112	102	91	80	70	59	48									
	62	116	15.3	116	113	102	91	81	70	59									
	57	121	15.5	121	116	105	95	84	73	63									
4375	72	139	15.7	105	92	79	67	54	41	29									
	67	129	15.5	125	112	99	87	74	61	49									
	62	118	15.3	118	116	111	99	86	73	61									
	57	123	15.5	123	120	115	102	90	77	64									
5000	72	141	15.7	115	100	86	71	57	42	28									
	67	131	15.5	131	122	108	93	78	64	49									
	62	120	15.3	120	120	120	106	91	77	62									
	57	125	15.6	125	125	125	110	95	81	66									
5625	72	144	15.7	125	109	92	75	59	42	26									
	67	133	15.5	133	131	115	99	82	65	49									
	62	122	15.4	122	122	122	106	89	72	56									
	57	127	15.6	127	127	127	110	94	77	60									
6250	72	146	15.7	135	117	98	80	61	42	24									
	67	136	15.6	136	136	123	104	86	67	48									
	62	124	15.4	124	124	124	105	87	68	49									
	57	129	15.6	129	129	129	110	92	73	54									

1 These capacities are gross ratings. For net capacity, deduct air blower motor, MBh = 3.415 x kW. Refer to the appropriate Blower Performance Table for the kW of the supply air blower motor.

2 These ratings include condenser fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.

TABLE 6: ELECTRICAL DATA DJ150 (12-1/2 TON) W/O PWRD CONVENIENCE OUTLET

Voltage	Compressors		OD Fan Motors	Supply Blower Motor FLA		Pwr Exh Motor	Pwr Conv Outlet	Electric Heater Model No.	Actual KW	Heater Amps	Min. Circuit Ampacity (Amps)		MCA w/Power Exhaust (Amps)		Max Fuse[1] Size (Amps)		Max Fuse[1] Size w/Power Exhaust (Amps)	
	RLA ea.	LRA ea.	FLA ea.	3 HP	5 HP	FLA	FLA				3 HP	5 HP	3 HP	5 HP	3 HP	5 HP	3 HP	5 HP
208	20.0	146.0	1.5	10.9	16.1	5.5	0.0	None	--	--	61.9	67.1	67.4	72.6	80	80	80	90
								2TP04521825	13.5	37.5	61.9	67.1	67.4	73.8	80	80	80	90
								2TP04522425	18.0	50.0	76.1	82.6	83.0	89.5	80	90	90	90
								2TP04523625	25.5	70.8	102.1	108.6	109.0	115.5	110	110	110	125
								2TP04525425	40.6	112.7	154.5	161.0	161.4	167.9	175	175	175	175
230	20.0	146.0	1.5	10.9	16.1	5.5	0.0	None	--	--	61.9	67.1	67.4	72.6	80	80	80	90
								2TP04521825	18.0	43.3	67.8	74.3	74.6	81.1	80	80	80	90
								2TP04522425	24.0	57.7	85.8	92.3	92.7	99.2	90	100	100	100
								2TP04523625	34.0	81.8	115.9	122.4	122.7	129.2	125	125	125	150
								2TP04525425	54.0	129.9	143.5	150.0	150.4	156.9	175	175	175	175
460	8.4	73.0	0.8	5.3	8.1	2.2	0.0	None	--	--	27.4	30.2	29.6	32.4	35	35	35	40
								2TP04521846	18	22.6	33.7	37.2	36.4	39.9	35	40	40	40
								2TP04522446	24	30.1	42.7	46.2	45.5	49	45	50	50	50
								2TP04523646	34	42.7	57.7	61.2	60.5	64	60	70	70	70
								2TP04525446	54	67.8	71.6	75.1	74.3	77.8	80	90	80	90
575	6.7	60.0	0.6	4.1	6.0	1.8	0.0	None	--	--	21.6	23.5	23.4	25.3	25	30	30	30
								2TP04521858	18	18.1	26.8	29.2	29	31.4	30	30	30	35
								2TP04522458	24	24.1	34	36.4	36.2	38.6	35	40	40	40
								2TP04523658	34	34.1	46	48.4	48.3	50.6	50	50	50	60
								2TP04525458	54	54.2	57.1	59.5	59.3	61.7	70	70	70	70

1 Maximum HACR breaker of the same AMP size is applicable.

TABLE 7: ELECTRICAL DATA DJ150 (12-1/2 TON) WITH PWRD CONVENIENCE OUTLET

Voltage	Compressors		OD Fan Motors	Supply Blower Motor FLA		Pwr Exh Motor	Pwr Conv Outlet	Electric Heater Model No.	Actual KW	Heater Amps	Min. Circuit Ampacity (Amps)		MCA w/Power Exhaust (Amps)		Max Fuse[1] Size (Amps)		Max Fuse[1] Size w/Power Exhaust (Amps)	
	RLA ea.	LRA ea.	FLA ea.	3 HP	5 HP	FLA	FLA				3 HP	5 HP	3 HP	5 HP	3 HP	5 HP	3 HP	5 HP
208	20.0	146.0	1.5	10.9	16.1	5.5	10.0	None	--	--	71.9	77.1	77.4	82.6	90	90	90	100
								2TP04521825	13.5	37.5	73.0	79.5	79.8	86.3	90	90	90	100
								2TP04522425	18.0	50.0	88.6	95.1	95.5	102.0	90	100	100	110
								2TP04523625	25.5	70.8	114.6	121.1	121.5	128.0	125	125	125	150
								2TP04525425	40.6	112.7	167.0	173.5	173.9	180.4	175	175	175	200
230	20.0	146.0	1.5	10.9	16.1	5.5	10.0	None	--	--	71.9	77.1	77.4	82.6	90	90	90	100
								2TP04521825	18.0	43.3	80.3	86.8	87.1	93.6	90	90	90	100
								2TP04522425	24.0	57.7	98.3	104.8	105.2	111.7	100	110	110	125
								2TP04523625	34.0	81.8	128.4	134.9	135.2	141.7	150	150	150	150
								2TP04525425	54.0	129.9	156.0	162.5	162.9	169.4	175	175	175	175
460	8.4	73.0	0.8	5.3	8.1	2.2	5.0	None	--	--	32.4	35.2	34.6	37.4	40	40	40	45
								2TP04521846	18	22.6	39.9	43.4	42.7	46.2	40	45	45	50
								2TP04522446	24	30.1	49	52.5	51.7	55.2	50	60	60	60
								2TP04523646	34	42.7	64	67.5	66.7	70.2	70	70	70	80
								2TP04525446	54	67.8	77.8	81.3	80.6	84.1	90	90	90	90
575	6.7	60.0	0.6	4.1	6.0	1.8	4.0	None	--	--	25.6	27.5	27.4	29.3	30	30	30	35
								2TP04521858	18	18.1	31.8	34.2	34	36.4	35	35	35	40
								2TP04522458	24	24.1	39	41.4	41.2	43.6	40	45	45	45
								2TP04523658	34	34.1	51	53.4	53.3	55.6	60	60	60	60
								2TP04525458	54	54.2	62.1	64.5	64.3	66.7	70	70	70	70

1 Maximum HACR breaker of the same AMP size is applicable.

TABLE 8: ELECTRIC HEAT MULTIPLIERS

VOLTAGE		kW Cap. Multiplier
NOMINAL	RATING	
240	208	0.75
	230	0.92
480	460	0.92
600	575	0.92

NOTE: Electric heaters are rated at nominal voltage. Use this table to determine the electric heat capacity for heaters supplied at lower voltages.

NOTES FOR TABLES 9 AND TABLE 10:

- Blower performance includes dry coil and 2” throwaway filters.
- Blower performance for gas heat includes the maximum number of heat tubes available for each tonnage.

ESP (External Static Pressure) given is that available for the supply and return air duct system. All internal resistances have been deducted from the total static pressure of the blower.

TABLE 9: BLOWER PERFORMANCE 12-1/2 TON SIDE DUCT

CFM	External Static Pressure																											
	0.2			0.4			0.6			0.8			1.0			1.2			1.4			1.6			1.8			2.0		
	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts
3700	----	----	----	----	----	----	----	----	----	874	1.93	1801	927	2.04	1906	984	2.27	2113	1037	2.41	2245	1089	2.57	2399	1138	2.68	2499	1178	2.82	2628
3800	----	----	----	----	----	----	840	1.82	1699	888	2.01	1871	941	2.14	1993	997	2.36	2202	1048	2.50	2334	1099	2.67	2485	1146	2.77	2586	1186	2.93	2728
3900	----	----	----	----	----	----	855	1.92	1786	903	2.09	1947	954	2.24	2085	1009	2.46	2295	1060	2.60	2427	1109	2.76	2576	1155	2.88	2680	1195	3.04	2834
4000	----	----	----	----	----	----	870	2.01	1877	917	2.18	2028	968	2.34	2182	1022	2.57	2392	1071	2.71	2524	1120	2.87	2672	1163	2.98	2780	1204	3.16	2947
4100	----	----	----	----	----	----	885	2.12	1973	932	2.27	2115	982	2.45	2283	1035	2.68	2494	1083	2.82	2626	1130	2.98	2774	1171	3.10	2887	1212	3.29	3066
4200	----	----	----	834	2.11	1970	900	2.22	2072	946	2.37	2207	996	2.56	2390	1048	2.79	2601	1094	2.93	2733	1140	3.09	2881	1179	3.22	3000	1221	3.42	3192
4300	----	----	----	851	2.19	2042	915	2.33	2175	961	2.47	2305	1009	2.68	2501	1061	2.91	2712	1106	3.05	2844	1150	3.21	2993	1188	3.35	3119	1230	3.57	3324
4400	----	----	----	868	2.28	2121	931	2.45	2283	975	2.58	2409	1023	2.81	2616	1074	3.03	2828	1117	3.18	2960	1160	3.34	3111	1196	3.48	3245	1239	3.71	3462
4500	822	2.13	1990	885	2.37	2208	946	2.57	2395	990	2.70	2518	1037	2.94	2736	1087	3.16	2948	1129	3.30	3080	1171	3.47	3234	1204	3.62	3377	1247	3.87	3607
4600	838	2.23	2083	901	2.47	2301	961	2.69	2511	1004	2.82	2633	1051	3.07	2862	1099	3.30	3072	1141	3.44	3204	1181	3.61	3362	1212	3.77	3515	1256	4.03	3758
4700	854	2.34	2184	918	2.58	2401	976	2.82	2631	1019	2.95	2753	1064	3.21	2991	1112	3.43	3201	1152	3.58	3333	1191	3.75	3496	1221	3.93	3659	1265	4.20	3916
4800	870	2.46	2291	935	2.69	2508	991	2.96	2755	1033	3.09	2879	1078	3.35	3126	1125	3.58	3335	1164	3.72	3467	1201	3.90	3635	1229	4.09	3810	1273	4.38	4080
4900	887	2.58	2406	952	2.81	2622	1007	3.09	2883	1048	3.23	3011	1092	3.50	3265	1138	3.73	3473	1175	3.87	3605	1211	4.05	3779	1237	4.26	3967	1282	4.56	4250
5000	903	2.71	2527	968	2.94	2744	1022	3.24	3016	1062	3.38	3148	1105	3.66	3409	1151	3.88	3616	1187	4.02	3748	1222	4.21	3929	1245	4.43	4131	1291	4.75	4427
5100	919	2.85	2656	985	3.08	2872	1037	3.38	3152	1077	3.53	3291	1119	3.82	3558	1164	4.04	3763	1198	4.18	3895	1232	4.38	4083	1254	4.61	4301	1300	4.95	4610
5200	936	2.99	2791	1002	3.23	3007	1052	3.53	3293	1091	3.69	3439	1133	3.98	3711	1177	4.20	3914	1210	4.34	4046	1242	4.55	4244	1262	4.80	4477	1308	5.15	4800
5300	952	3.15	2934	1018	3.38	3149	1067	3.69	3438	1106	3.85	3593	1147	4.15	3869	1189	4.37	4070	1221	4.51	4202	1252	4.73	4409	1270	5.00	4660	1317	5.36	4996
5400	968	3.31	3083	1035	3.54	3298	1083	3.85	3587	1120	4.03	3753	1160	4.33	4032	1202	4.54	4231	1233	4.68	4363	1262	4.91	4580	1278	5.20	4848	----	----	----
5500	984	3.48	3240	1052	3.71	3455	1098	4.01	3740	1135	4.20	3918	1174	4.51	4200	1215	4.72	4396	1244	4.86	4528	1273	5.10	4757	1286	5.41	5044	----	----	----
5600	1001	3.65	3403	1069	3.88	3618	1113	4.18	3897	1149	4.39	4089	1188	4.69	4372	1228	4.90	4566	1256	5.04	4698	1283	5.30	4938	----	----	----	----	----	----
5700	1017	3.83	3574	1085	4.06	3788	1128	4.35	4058	1164	4.58	4265	1201	4.88	4549	1241	5.08	4740	1267	5.23	4872	1293	5.50	5125	----	----	----	----	----	----
5800	1033	4.02	3751	1102	4.25	3965	1143	4.53	4224	1178	4.77	4447	1215	5.07	4731	1254	5.28	4918	1279	5.42	5050	----	----	----	----	----	----	----	----	----
5900	1050	4.22	3936	1119	4.45	4149	1159	4.71	4393	1193	4.97	4635	1229	5.27	4917	1267	5.47	5101	----	----	----	----	----	----	----	----	----	----	----	----
6000	1066	4.43	4127	1136	4.66	4341	1174	4.90	4567	1207	5.18	4828	1243	5.48	5108	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
6100	1082	4.64	4326	1152	4.87	4539	1189	5.09	4745	1222	5.39	5027	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
6200	1098	4.86	4531	1169	5.09	4744	1204	5.29	4927	1236	5.61	5231	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

High Horsepower Option Required

TABLE 10: BLOWER PERFORMANCE 12-1/2 TON DOWNSHOT

CFM	External Static Pressure																													
	0.2			0.4			0.6			0.8			1.0			1.2			1.4			1.6			1.8			2.0		
	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts	RPM	BHP	Watts
3700	----	----	----	----	----	----	908	1.99	1853	957	2.12	1976	1004	2.27	2112	1050	2.42	2258	1094	2.59	2412	1136	2.76	2571	1177	2.93	2733	1217	3.11	2895
3800	----	----	----	875	1.96	1831	926	2.09	1946	974	2.23	2077	1020	2.38	2220	1065	2.54	2372	1108	2.71	2530	1151	2.89	2693	1191	3.06	2856	1231	3.24	3021
3900	----	----	----	893	2.06	1918	943	2.19	2044	990	2.34	2183	1036	2.50	2332	1080	2.67	2489	1123	2.84	2652	1165	3.02	2817	1205	3.20	2983	1244	3.38	3149
4000	----	----	----	911	2.16	2012	960	2.30	2147	1007	2.46	2294	1052	2.63	2449	1096	2.80	2611	1138	2.98	2777	1179	3.16	2945	1219	3.34	3113	1258	3.52	3280
4100	878	2.13	1984	929	2.27	2113	977	2.42	2256	1023	2.59	2410	1068	2.76	2571	1111	2.94	2737	1153	3.12	2906	1194	3.30	3076	1233	3.48	3245	1271	3.66	3414
4200	897	2.23	2080	947	2.38	2219	995	2.54	2371	1040	2.72	2531	1084	2.89	2697	1127	3.08	2867	1168	3.26	3039	1208	3.44	3211	1247	3.63	3381	1285	3.81	3550
4300	915	2.34	2184	965	2.50	2332	1012	2.67	2491	1056	2.85	2657	1100	3.03	2828	1142	3.22	3001	1183	3.41	3175	1223	3.59	3348	1261	3.78	3520	1298	3.96	3690
4400	934	2.46	2294	983	2.63	2451	1029	2.81	2617	1073	2.99	2788	1116	3.18	2963	1157	3.37	3139	1198	3.56	3315	1237	3.74	3490	1275	3.93	3662	1311	4.11	3832
4500	953	2.59	2411	1001	2.76	2577	1046	2.95	2749	1090	3.14	2925	1132	3.33	3103	1173	3.52	3281	1212	3.71	3459	1251	3.90	3634	1289	4.08	3807	1325	4.27	3977
4600	972	2.72	2536	1019	2.91	2708	1063	3.10	2886	1106	3.29	3066	1148	3.48	3247	1188	3.68	3428	1227	3.87	3606	1266	4.06	3782	1303	4.24	3955	1338	4.43	4125
4700	991	2.86	2667	1036	3.05	2846	1081	3.25	3029	1123	3.45	3212	1164	3.64	3396	1204	3.84	3578	1242	4.03	3758	1280	4.22	3933	1316	4.40	4106	1352	4.59	4275
4800	1009	3.01	2806	1054	3.21	2990	1098	3.41	3177	1139	3.61	3364	1180	3.81	3549	1219	4.00	3732	1257	4.20	3912	1294	4.39	4088	1330	4.57	4260	1365	4.75	4429
4900	1028	3.17	2951	1072	3.37	3141	1115	3.57	3331	1156	3.78	3520	1196	3.98	3707	1234	4.17	3891	1272	4.37	4071	1309	4.56	4246	1344	4.74	4417	1379	4.92	4585
5000	1047	3.33	3103	1090	3.54	3297	1132	3.74	3491	1172	3.95	3682	1211	4.15	3870	1250	4.35	4054	1287	4.54	4233	1323	4.73	4407	1358	4.91	4577	1392	5.09	4744
5100	1066	3.50	3263	1108	3.71	3460	1149	3.92	3656	1189	4.13	3848	1227	4.33	4037	1265	4.53	4221	1302	4.72	4399	1338	4.91	4572	1372	5.09	4740	----	----	----
5200	1084	3.68	3430	1126	3.89	3629	1167	4.11	3827	1205	4.31	4020	1243	4.51	4208	1281	4.71	4391	1317	4.90	4569	1352	5.09	4740	----	----	----	----	----	----
5300	1103	3.87	3603	1144	4.08	3805	1184	4.29	4003	1222	4.50	4196	1259	4.70	4384	1296	4.90	4566	1331	5.09	4742	----	----	----	----	----	----	----	----	----
5400	1122	4.06	3784	1162	4.28	3987	1201	4.49	4185	1238	4.70	4378	1275	4.90	4565	1311	5.09	4745	----	----	----	----	----	----	----	----	----	----	----	----
5500	1141	4.26	3971	1180	4.48	4175	1218	4.69	4373	1255	4.90	4564	1291	5.10	4750	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
5600	1160	4.47	4166	1198	4.69	4369	1235	4.90	4566	1271	5.10	4756	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
5700	1178	4.69	4368	1216	4.90	4569	1253	5.11	4765	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
5800	1197	4.91	4576	1234	5.12	4776	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
5900	1216	5.14	4792	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
6000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
6100	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
6200	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

High Horsepower Option Required

Motor Efficiency0.8

Std HP Motor3

TABLE 11: ADDITIONAL STATIC RESISTANCE

CFM	Cooling Only[1]	Economizer[2 3]	Electric Heat KW[2]			
			18	24	36	54
3700	0.20	0.04	0.18	0.21	0.22	0.26
3900	0.23	0.04	0.20	0.23	0.24	0.28
4100	0.25	0.04	0.22	0.25	0.26	0.31
4300	0.28	0.05	0.24	0.28	0.29	0.34
4500	0.30	0.05	0.26	0.30	0.31	0.37
4700	0.33	0.05	0.29	0.33	0.34	0.40
4900	0.36	0.05	0.31	0.35	0.37	0.43
5100	0.39	0.06	0.34	0.38	0.40	0.46
5300	0.42	0.06	0.37	0.41	0.43	0.49
5500	0.45	0.06	0.40	0.44	0.46	0.53
5700	0.48	0.06	0.43	0.47	0.49	0.56
5900	0.52	0.07	0.46	0.50	0.53	0.59
6100	0.56	0.07	0.49	0.53	0.56	0.62
6300	0.60	0.07	0.53	0.56	0.59	0.65

1 Add these resistance values to the available static resistance in the respective Blower Performance Tables.
2 Deduct these resistance values from the available external static pressure shown in the respective Blower Performance Table.
3 The pressure drop through the economizer is greater for 100% outdoor air than for 100% return air. If the resistance of the return air duct system is less than 0.25 IWG, the unit will deliver less CFM during full economizer operation.

TABLE 12: ELECTRIC HEAT MINIMUM SUPPLY AIR CFM

HEATER		UNIT NOMINAL TONS
kW	VOLTAGE	12.5
		MINIMUM SUPPLY AIR CFM
18	208/230	3750
24		
36		
54		
18	480	3750
24		
36		
54		
18	600	3750
24		
36		
54		

TABLE 13: INDOOR BLOWER SPECIFICATIONS

MODEL	MOTOR					MOTOR SHEAVE			BLOWER SHEAVE			BELT
	HP	RPM	Eff.	SF	Frame	Datum Dia. (in.)	Bore (in.)	Model	Datum Dia. (in.)	Bore (in.)	Model	
DJ150	3	1725	80%	1.15	56	3.4 - 4.4	7/8	1VM50	7.0	1	AK74	A54
	5	1725	87%	1.15	184T	4.3 - 5.3	1 1/8	1VP56	6.7	1	BK77	BX55

TABLE 14: POWER EXHAUST SPECIFICATIONS

POWER EXHAUST MODEL	VOLT	PHASE	MOTOR			ELECTRICAL			FUSE SIZE	CFM@ 0.1 ESP
			HP	RPM[1]	QTY	LRA	FLA	MCA		
2PE0473125	208/230	1	0.75	1075	1	24.9	5.0	6.3	10	3,800
2PE0473146	460	1				N/A	2.2	2.8	5	
2PE0473158	575	1		1050			1.5	1.9	4	

1 Motors are multi-tapped and factory wired for high speed.

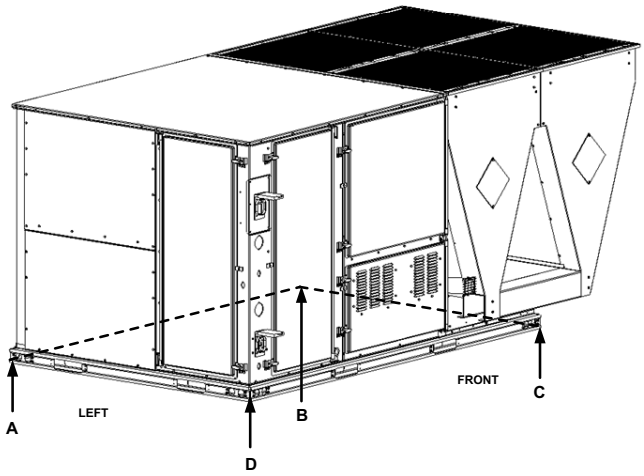


FIGURE 2 - UNIT 4 POINT LOAD

TABLE 15: 4 POINT LOAD WEIGHT

Model	Location (lbs.)			
	A	B	C	D
DJ150	282	359	468	371

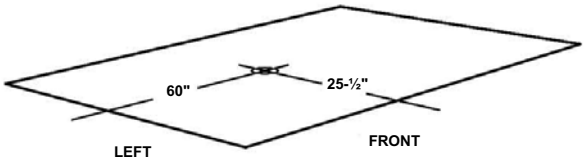


FIGURE 3 - UNIT CENTER OF GRAVITY

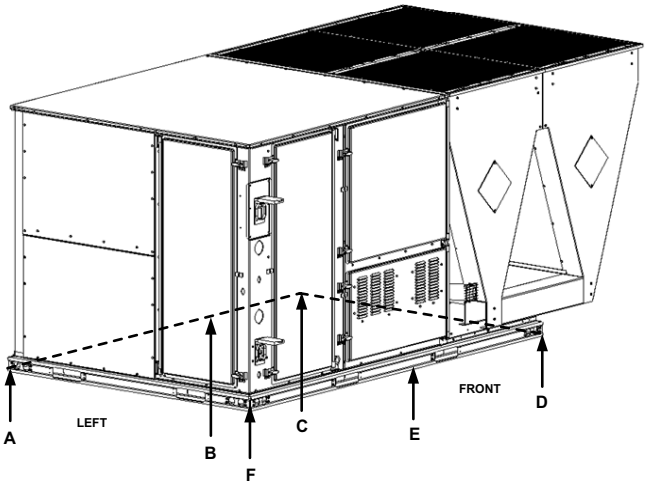


FIGURE 4 - UNIT WITH 6 POINT LOAD

TABLE 16: 6 POINT LOAD WEIGHT

Model	Locations (lbs.)					
	A	B	C	D	E	F
DJ150	184	210	246	323	275	242

TABLE 17: UNIT WEIGHTS

Model DJ150	Shipping Weight (lb.)	Operating Weight (lb.)
Cooling Unit Only	1495	1480
w/Economizer	85	84
w/Power Exhaust	150	148
w/Gas Heat[1]	110	110
w/Electric Heat[2]	49	49

1 8 Tube Heat Exchanger
2 54 kW heater

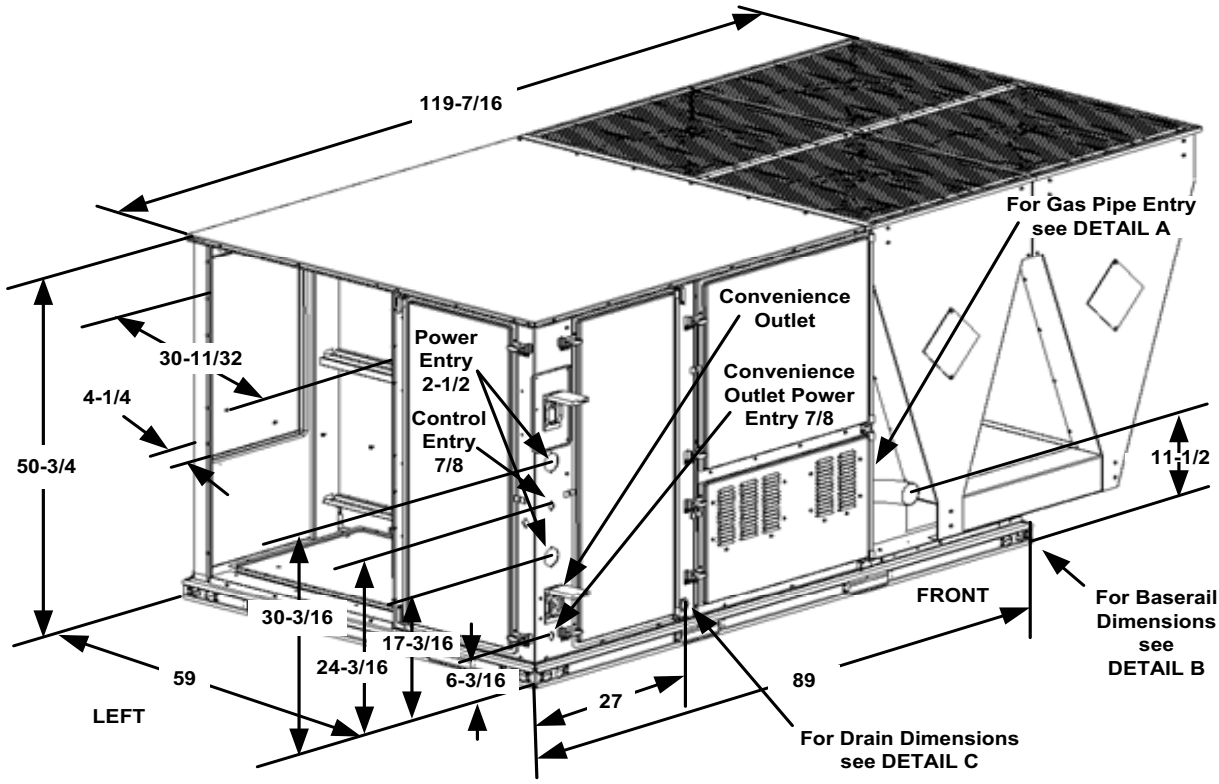
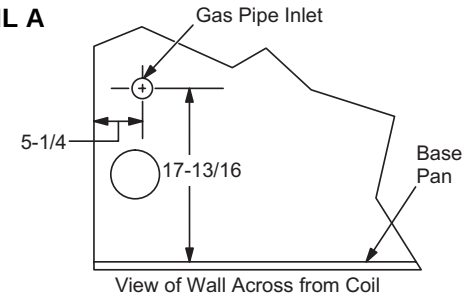
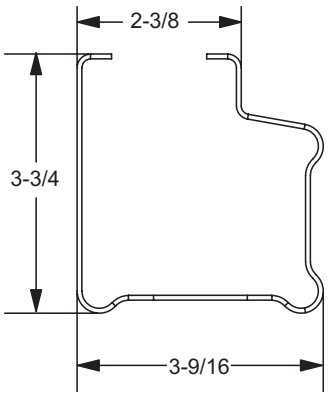


FIGURE 5 - UNIT DIMENSIONS

DETAIL A



DETAIL B



DETAIL C

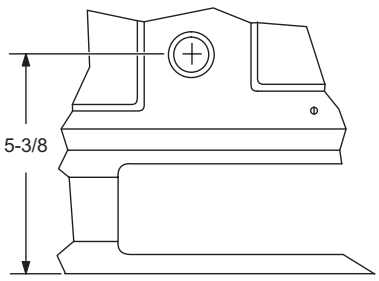


TABLE 18: UNIT CLEARANCES

Top[1]	72”	**Right**	12”
Front	36”	**Left**	36”
Rear[2]	36”	**Bottom**[3]	0”

1 Units must be installed outdoors. Overhanging structure or shrubs should not obstruct condenser air discharge outlet.
2 To remove the slide-out drain pan, a rear clearance of 60” is required. If space is unavailable, the drain pan can be removed through the front by separating the corner wall.
3 Units may be installed on combustible floors made from wood or class A, B or C roof covering materials.

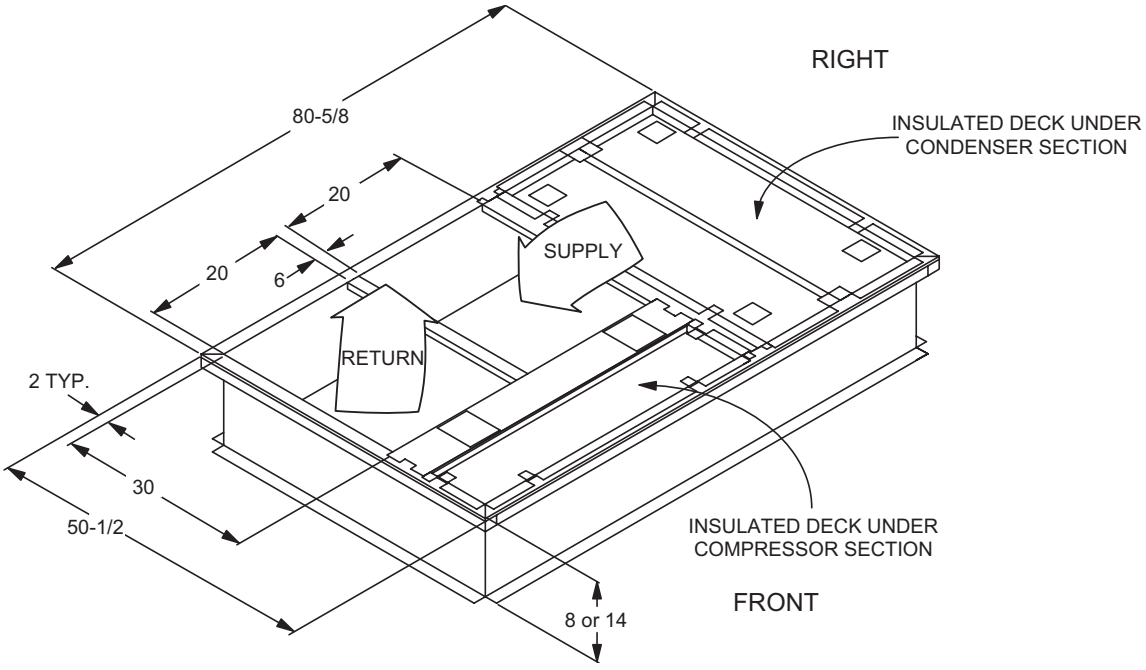


FIGURE 6 - PREDATOR® MAGNUM ROOF CURB DIMENSIONS

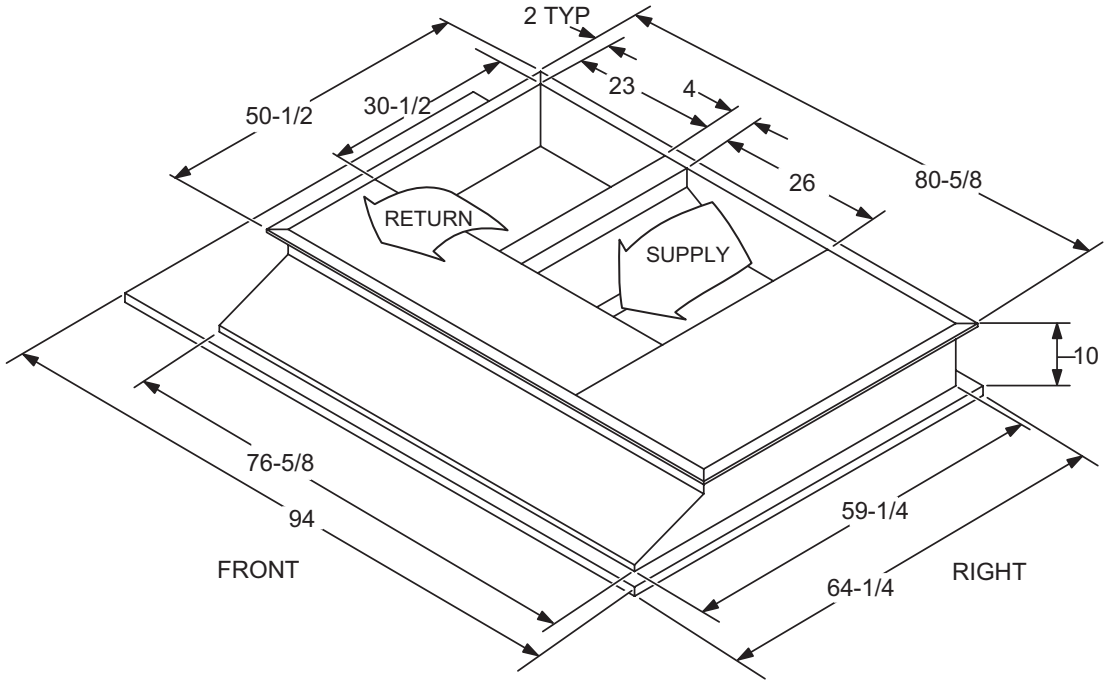


FIGURE 7 - SUNLINE™ TO PREDATOR® MAGNUM TRANSITION ROOF CURBS

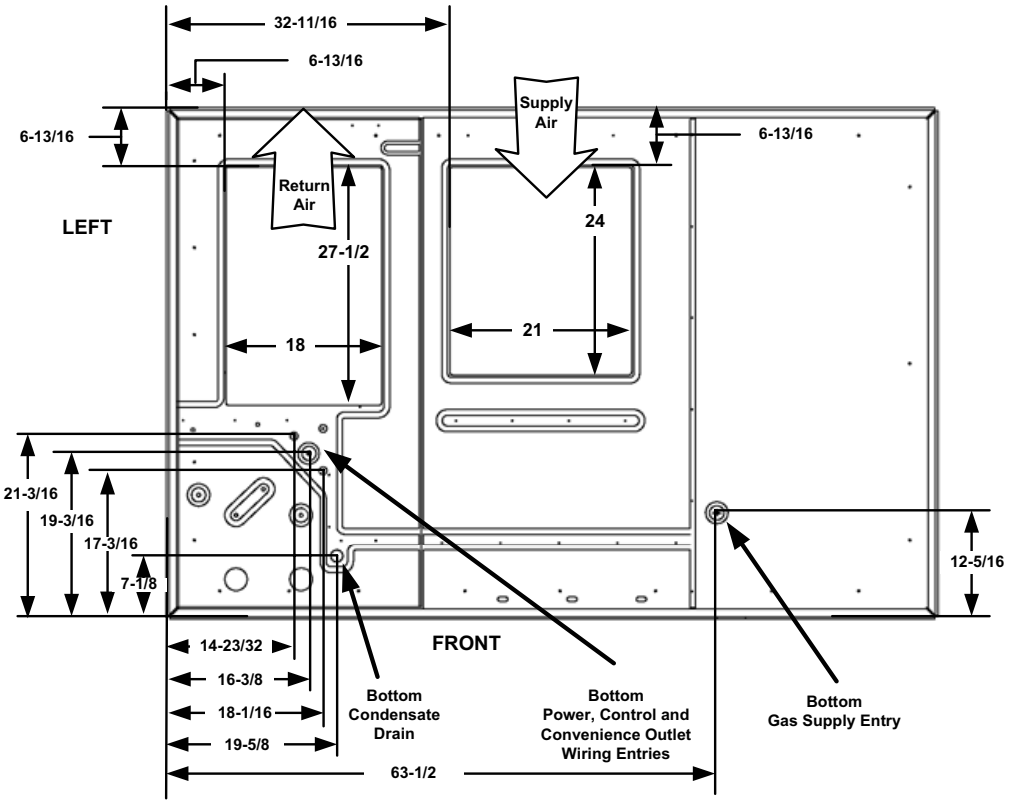


FIGURE 8 - BOTTOM DUCT OPENINGS (FROM ABOVE)

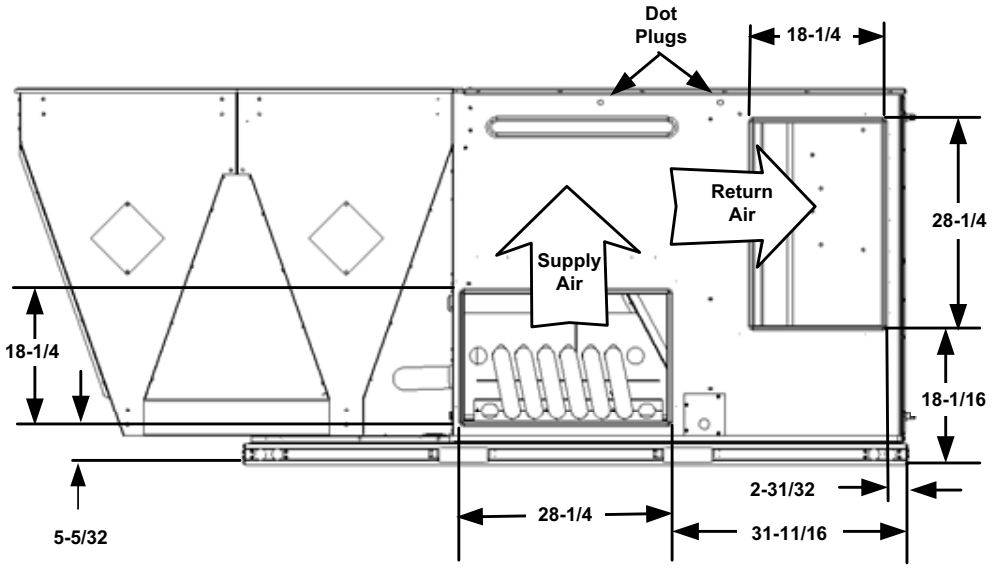


FIGURE 9 - SIDEFLOW DUCT DIMENSIONS

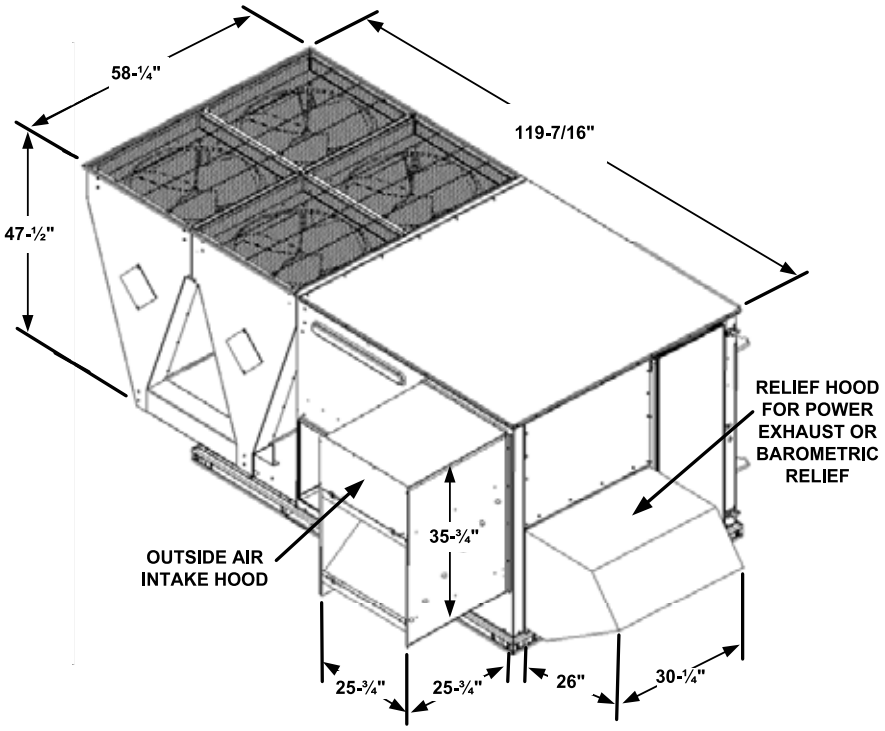


FIGURE 10 - DOWNFLOW ECONOMIZER HOOD DETAIL

TABLE 19: ECONOMIZER USAGE

Application	Description	Model
Bottom Return	Downflow economizer with barometric relief	2EE04705424
Side Return	Horizontal economizer without barometric relief	2EE04705524[1]
ERV or End Return	Slab Economizer, 50" tall cabinet	2EE04705224[2]

1 Barometric relief must be ordered separately and installed in duct work.
2 Barometric relief or fresh air hood not included. Must be ordered separately.

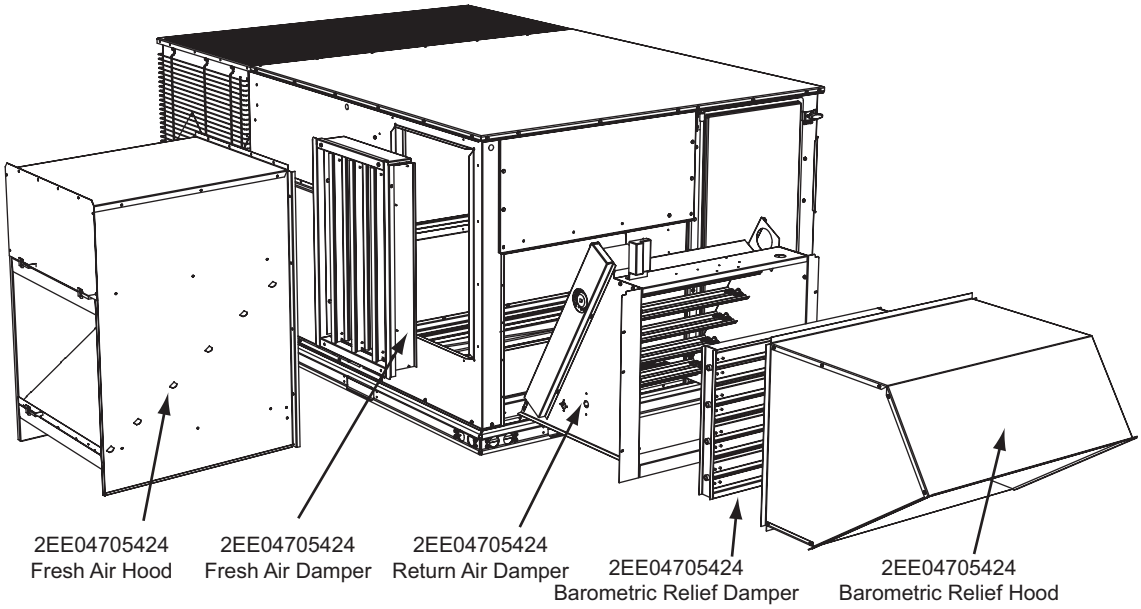


FIGURE 11 - FACTORY INSTALLED DOWNFLOW ECONOMIZER

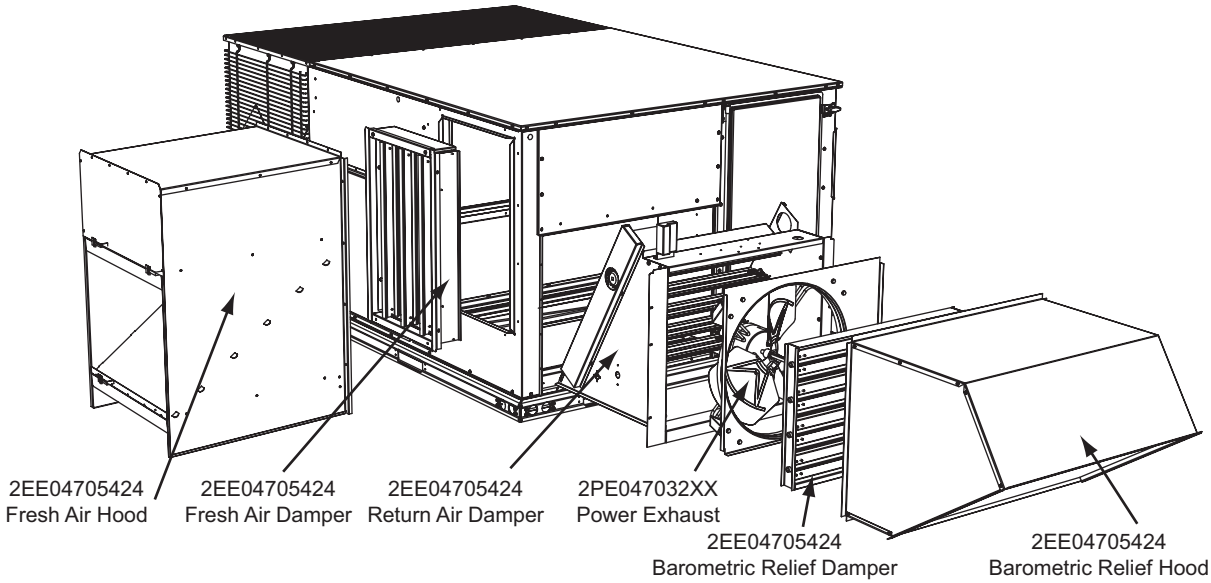


FIGURE 12 - FIELD INSTALLED DOWNFLOW ECONOMIZER W/POWER EXHAUST

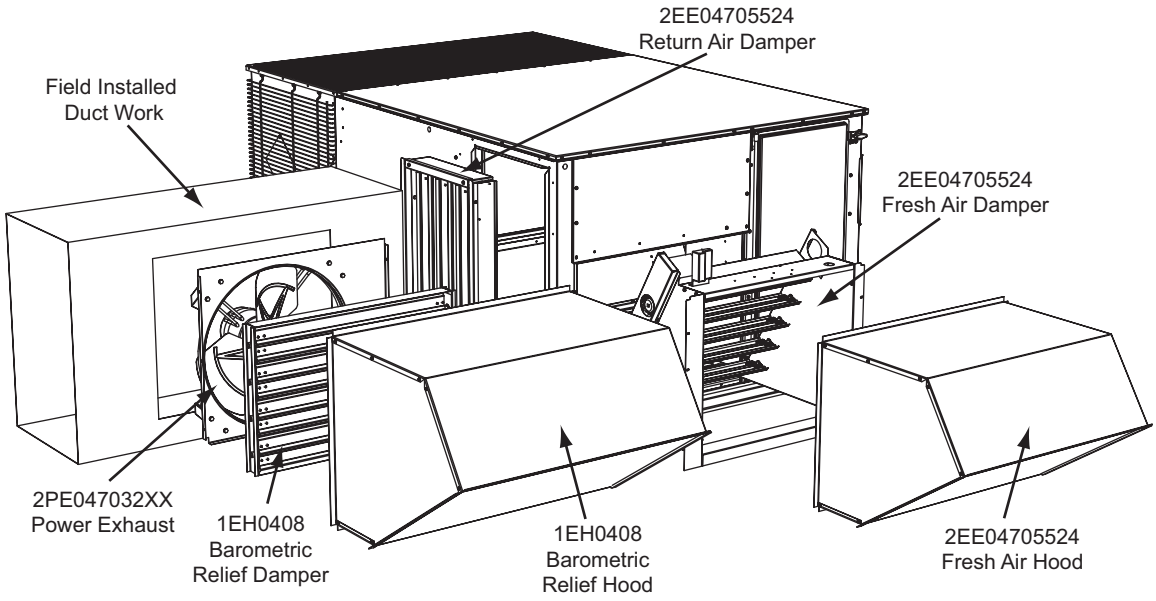


FIGURE 13 - FIELD INSTALLED HORIZONTAL ECONOMIZER W/POWER EXHAUST

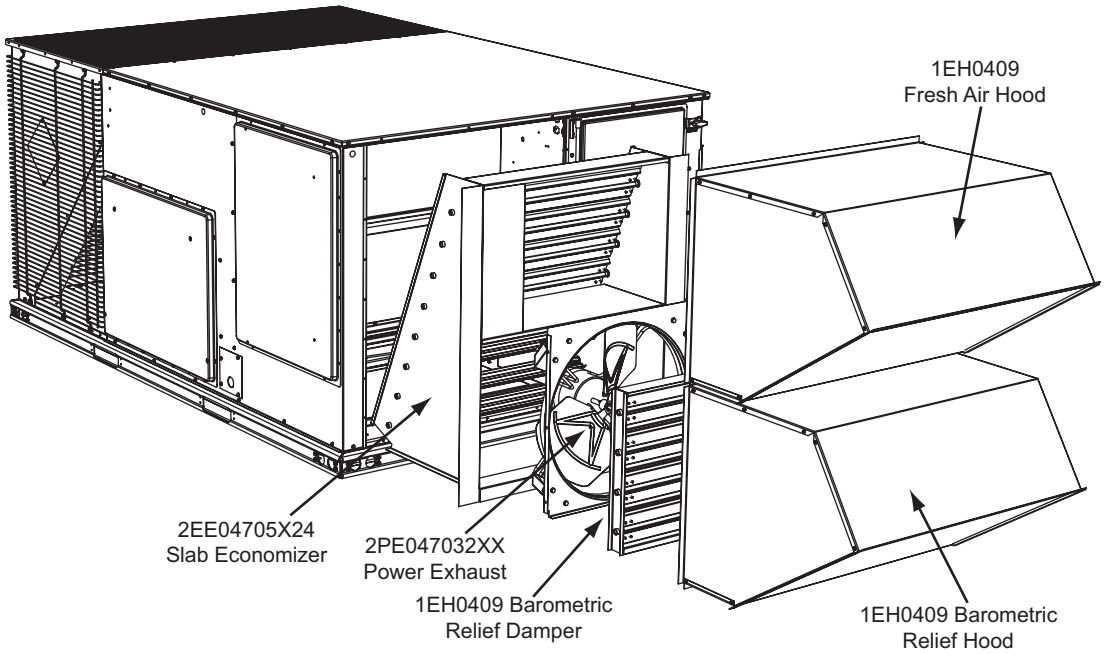


FIGURE 14 - SLAB ECONOMIZER DOWNFLOW W/POWER EXHAUST

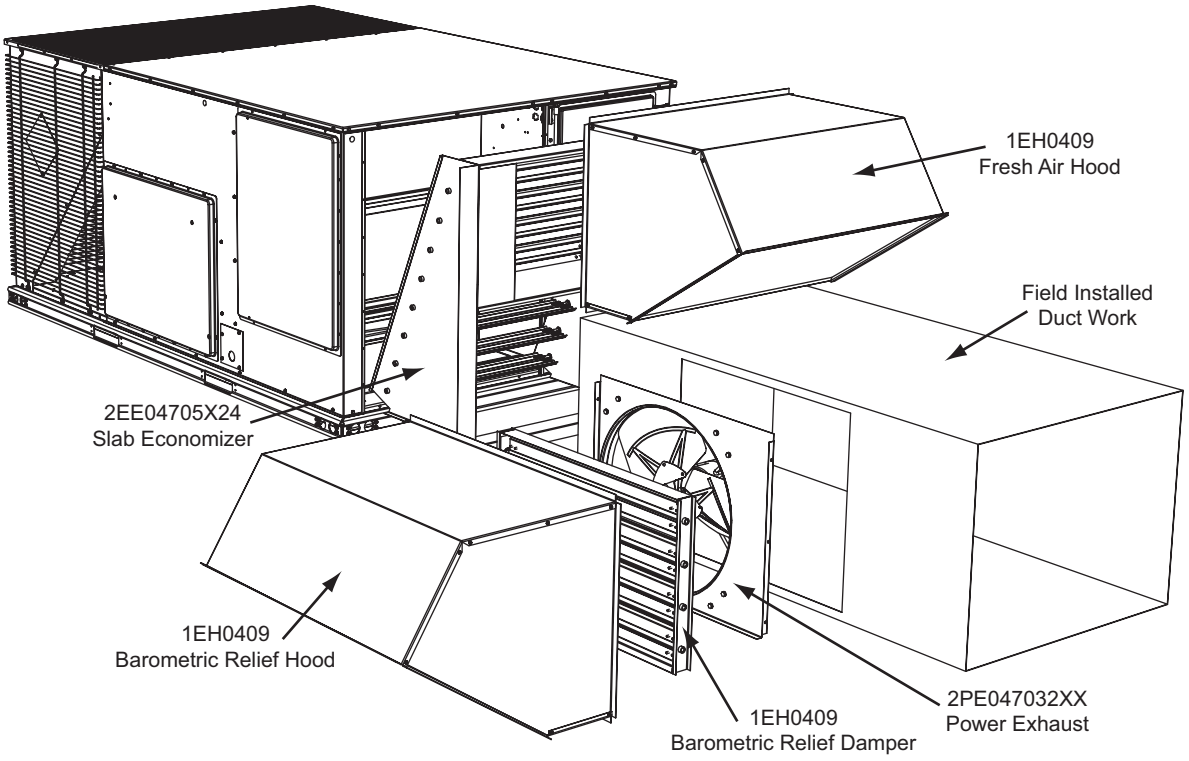


FIGURE 15 - SLAB ECONOMIZER END RETURN W/POWER EXHAUST

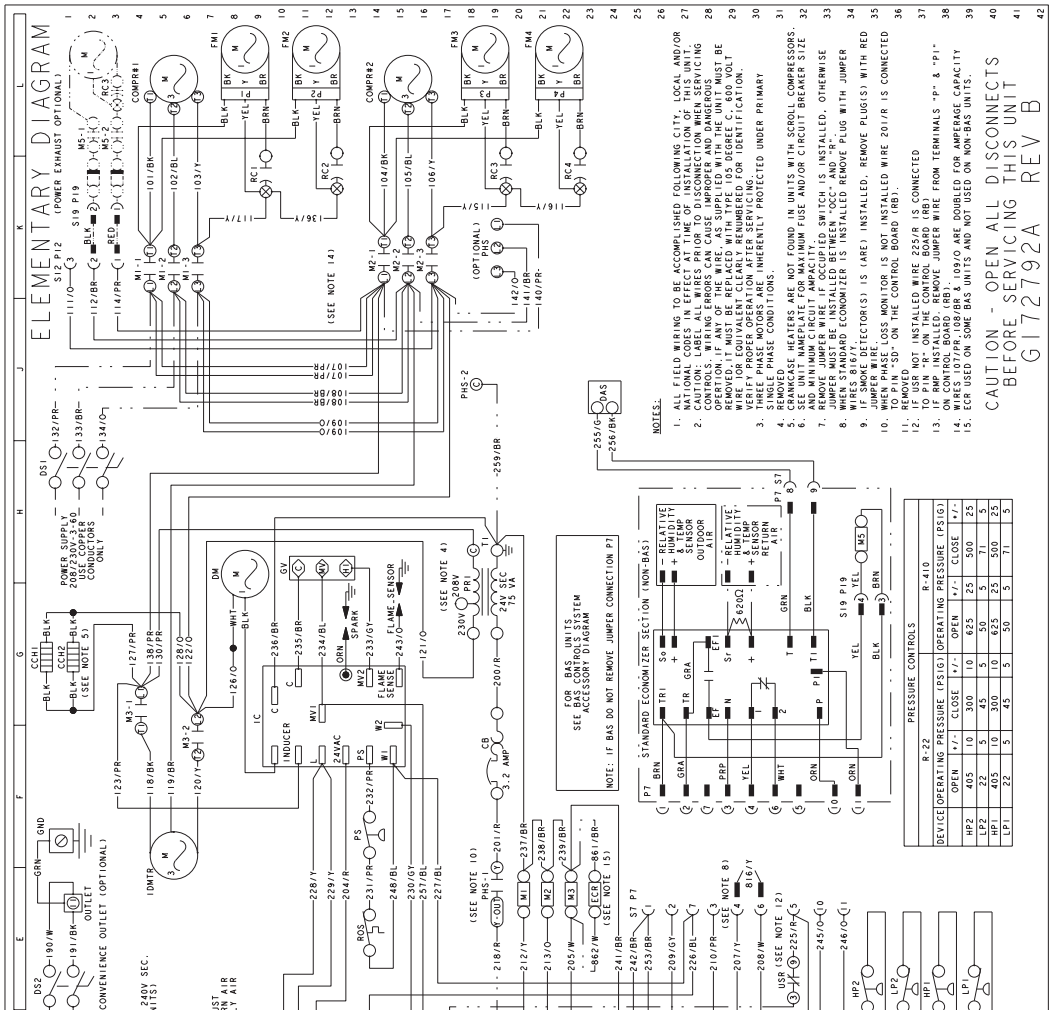


FIGURE 16 - COOLING UNIT WITH GAS HEAT WIRING 230 V. DIAGRAM

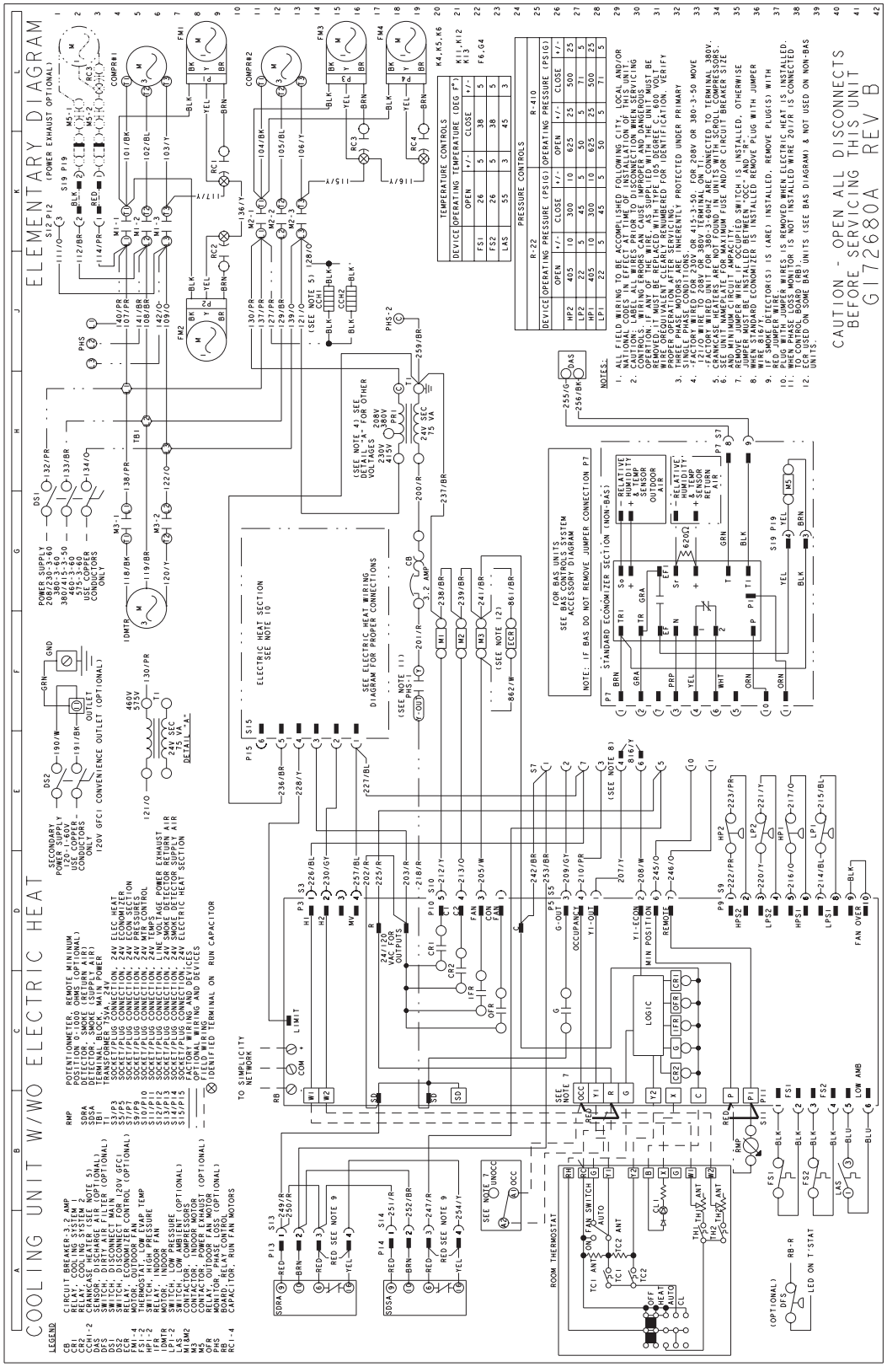


FIGURE 17 - COOLING UNIT W/WO ELECTRIC HEAT WIRING DIAGRAM

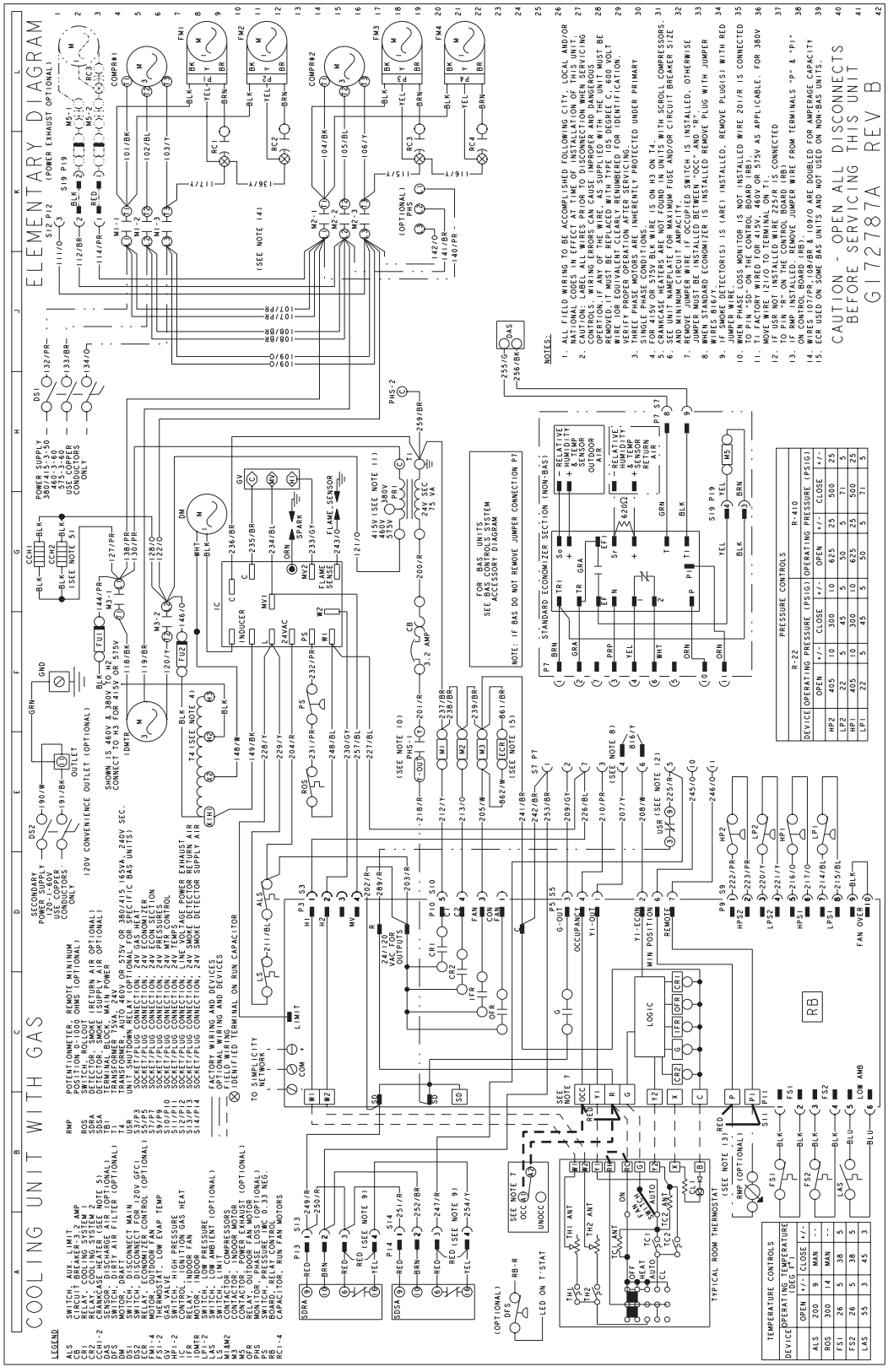


FIGURE 18 - COOLING UNIT WITH GAS HEAT WIRING 460, 575 & 50 HZ DIAGRAM

MECHANICAL SPECIFICATIONS
SINGLE PACKAGE AIR COOLED GAS/ELECTRIC UNITS FOR 12.5 NOMINAL TONS
PREDATOR® MAGNUM - DJ 150
11.35 EER

GENERAL

Units shall be manufactured by York International Unitary Products Group in an ISO 9001 certified facility. YORK® Predator® Magnum units are convertible single packages with a common footprint cabinet and common roof curb for all 12-1/2 ton models. All units have two compressors with independent refrigeration circuits to provide 2 stages of cooling. The units were designed for light commercial applications and can be easily installed on a roof curb, slab, or frame. All Predator® units are self-contained and assembled on rigid full perimeter base rails allowing for 3-way forklift access and overhead rigging. Every unit is completely charged, wired, piped, and tested at the factory to provide a quick and easy field installation. All units are convertible between side and down airflow. Independent Predator® Magnum Economizer designs are used on side and down discharge applications, as well as all tonnage sizes. Predator® Magnum units are available in the following configurations: cooling only, cooling with electric heat, and cooling with gas heat. Electric heaters are available as factory-installed options or field-installed accessories.

DESCRIPTION

Units shall be factory assembled, single package, (Elec/Elec, Gas/Elec), designed for outdoor installation. Units shall have a minimum EER of 11.35. They shall have built in field convertible duct connections for down discharge supply/return or horizontal discharge supply/return and be available with factory installed options or field installed accessories. The units shall be factory wired, piped and charged with R-22 refrigerant and factory tested prior to shipment. All unit wiring shall be both numbered and color coded. The cooling performance shall be rated in accordance with DOE and ARI test procedures. Units shall be CSA certified to ANSI Z21.47 and UL 1995/CAN/CSA No. 236-M90 standards.

UNIT CABINET

Unit cabinet shall be constructed of G90 galvanized steel with exterior surfaces coated with a non-chalking, powder paint finish, certified at 1000 hours salt spray test per ASTM-B117 standards. Indoor blower sections shall be insulated with 1/2" thick insulation coated on the airside. Aluminum foil faced insulation shall be used in the unit's compartments and be fastened to prevent insulation from entering the air stream. Cabinet doors shall be hinged with toolless access for easy servicing and maintenance. Full perimeter base rails shall be provided to assure reliable transit of equipment, overhead rigging, fork truck access and proper sealing on roof curb applications. Disposable 2" filters shall be furnished and be accessible through hinged access door. Fan performance measuring ports shall be provided on the outside of the cabinet to allow accurate air measurements of evaporator fan performance without removing panels or creating bypass of the coils. Condensate pan shall be slide out design, constructed of a non corrosive material, internally sloped and conforming to ASHRAE 62-B9 standards. Condensate connection shall be a minimum of ¾" I.D. female and be rigid mount connection.

INDOOR (EVAPORATOR) FAN ASSEMBLY

Fan shall be a belt drive assembly and include an adjustable pitch motor pulley. Job site selected brake horsepower shall not exceed the motors nameplate horsepower rating plus the service factor. Units shall be designed to operate within the service factor. Fan wheel shall be double inlet type with forward curve blades, dynamically balanced to operate smoothly throughout the entire range of operation. Airflow design shall be constant volume. Bearings shall be sealed and permanently lubricated for longer life and no maintenance. Entire blower assembly and motor shall be slide out design.

OUTDOOR (CONDENSER) FAN ASSEMBLY

The outdoor fans shall be of the direct drive type, discharge air vertically, have aluminum blades riveted to corrosion resistant steel spider brackets and shall be dynamically balanced for smooth operation. The outdoor fan motors shall have permanently lubricated bearings internally protected against overload conditions and staged independently. A cleaning window shall be provided on two sides of the units for coil cleaning.

REFRIGERANT COMPONENTS

Compressors:

a. Shall be scroll type, direct drive, internally protected with internal high-pressure relief and over temperature protection. The hermetic motor shall be suction gas cooled and have a voltage range of + or – 10% of the unit nameplate voltage.

b. Shall have internal spring isolation and sound muffling to minimize vibration and noise, and be externally isolated on a dedicated, independent mounting.

Coils:

a. Evaporator and condenser coils shall have aluminum plate fins mechanically bonded to seamless internally enhanced copper tubes with all joints brazed. Special Phenolic coating shall be available as a factory option.

b. Evaporator and condenser coils shall be of the direct expansion, draw-thru design.

Refrigerant Circuit and Refrigerant Safety Components shall include:

a. Independent fixed-orifice or thermally operated expansion devices.

b. Solid core filter drier/strainer to eliminate any moisture or foreign matter.

c. Accessible service gage connections on both suction and discharge lines to charge, evacuate, and measure refrigerant pressure during any necessary servicing or troubleshooting, without losing charge.

d. The unit shall have two independent refrigerant circuits, equally split in 50% capacity increments.

Unit Controls:

a. Unit shall be complete with self-contained low-voltage control circuit protected by a resetable circuit breaker on the 24-volt transformer side.

b. Unit shall incorporate a lockout circuit which provides reset capability at the space thermostat or base unit, should any of the following standard safety devices trip and shut off compressor:

(1) loss-of-charge/Low-pressure switch,

(2) high-pressure switch,

(3) freeze-protection thermostat, evaporator coil.

c. If any of the above safety devices trip, a LED (light-emitting diode) indicator shall flash a diagnostic code that indicates which safety switch has tripped.

d. Unit shall incorporate “AUTO RESET” compressor over temperature, over current protection.

e. Unit shall operate with conventional thermostat designs and have a low voltage terminal strip for easy hook-up.

f. Unit control board shall have on-board diagnostics and fault code display.

g. Standard controls shall include anti-short cycle and low voltage protection, and permit cooling operation down to 0 °F.

h. Control board shall monitor each refrigerant safety switch independently.

i. Control board shall retain last 5 fault codes in non volatile memory, which will not be lost in the event of a power loss.

GAS HEATING SECTION (IF EQUIPPED)

Heat exchanger and exhaust system shall be constructed of aluminized steel or optional stainless steel. Shall be designed with induced draft combustion with post purge logic, energy saving direct spark ignition, and redundant main gas valve. The heat exchanger shall be of the tubular type, constructed of T1-40 aluminized steel (or optional 304 stainless steel) for corrosion resistance and allowing minimum mixed air entering temperature of 40 °F. Burners shall be of the in-shot type, constructed of aluminum-coated steel. All gas piping shall enter the unit cabinet at a single location, through either the side or bottom, without any field modifications. An integrated control board shall provide timed control of evaporator fan functioning and burner ignition. Heating section shall be provided with the following minimum protection:

a. Primary and auxiliary high-temperature limit switches.

b. Induced draft pressure sensor.

c. Flame roll out switch (manual reset).

d. Flame proving controls. Unit shall have two independent stages of capacity (60% 1st stage, 100% 2nd stage).

ELECTRIC HEATING SECTION (IF EQUIPPED)

An electric heating section, with nickel chromium elements, shall be provided in a range of 9 thru 54 KW, offering two stages of capacity all sizes. The heating section shall have a primary limit control(s) (automatic reset) to prevent the heating element system from operating at an excessive temperature. The Heating Section assembly shall slide out of the unit for easy maintenance and service. Units with Electric Heating Sections shall be wired for a single point power supply with branch circuit fusing (where required).

UNIT OPERATING CHARACTERISTICS

Unit shall be capable of starting and running at 125 °F outdoor temperature, exceeding maximum load criteria of ARI Standard 340/360. The compressor, with standard controls, shall be capable of operation down to 0 °F outdoor temperature. Unit shall be provided with fan time delay to prevent cold air delivery before heat exchanger warms up. (Gas heat only).

ELECTRICAL REQUIREMENTS

All unit power wiring shall enter unit cabinet at a single factory provided location and be capable of side or bottom entry to minimize roof penetrations and avoid unit field modifications. Separate side and bottom openings shall be provided for the control wiring.

STANDARD LIMITED WARRANTIES

Compressor – 5 Years, Heat Exchanger – 10 Years, Elect. Heat Elem. – 5 Years, Parts – 1 Year

FACTORY INSTALLED OPTIONAL OUTDOOR AIR (Shall be made available by either/or):

1. **ELECTRONIC ENTHALPY AUTOMATIC ECONOMIZER** – Outdoor and return air dampers that are interlocked and positioned by a fully-modulating, spring-return damper actuator. The maximum leakage rate for the outdoor air intake dampers shall not exceed 2% when dampers are fully closed and operating against a pressure differential of 0.5 IWG. A unit-mounted potentiometer shall be provided to adjust the outdoor and return air damper assembly to take in outdoor air to meet the minimum ventilation requirement of the conditioned

space during normal operation. During economizer operation, a mixed-air temperature control shall modulate the outdoor and return air damper assembly to prevent the supply air temperature from dropping below 55 °F. Changeover from compressor to economizer operation shall be provided by an integral electronic enthalpy control that feeds input into the basic module. The outdoor intake opening shall be covered with a rain hood that matches the exterior of the unit. Water eliminator/filters shall be provided. Simultaneous economizer/compressor operation is also possible. Dampers shall fully close on power loss. Available with barometric relief or power exhaust.

2. **MOTORIZED OUTDOOR AIR DAMPERS** – Outdoor and return air dampers that are interlocked and positioned by a 2-position, spring-return damper actuator. The maximum leakage rate for the outdoor air intake dampers shall not exceed 2% when dampers are fully closed and operating against a pressure differential of 0.5 IWG. A unit-mounted potentiometer shall be provided to adjust the outdoor and return air damper assembly to take in the design CFM of outdoor air to meet the ventilation requirements of the conditioned space during normal operation. Whenever the indoor fan motor is energized, the dampers open up to one of two pre-selected positions – regardless of the outdoor air enthalpy. Dampers return to the fully closed position when the indoor fan motor is de-energized. Dampers shall fully close on power loss.

ADDITIONAL FACTORY INSTALLED OPTIONS

- **ALTERNATE INDOOR BLOWER MOTOR** – For applications with high restrictions, units are available with optional indoor blower motors that provide higher static output and/or higher airflow.
- **CONVENIENCE OUTLET (POWERED/NON-POWERED)** – Unit can be provided with an optional 120VAC GFCI outlet with cover on the corner of the unit housing the compressors.
- **PHASE MONITOR** - Designed to prevent damage in out-of-phase condition.
- **COIL GUARD** - Designed to prevent condenser coil damage.
- **BAS CONTROLS** - Include supply air sensor, return air sensor, dirty filter indicator and air proving switch.
- **DIRTY FILTER SWITCH** – This kit includes a differential pressure switch that energizes the fault light on the unit thermostat, indicating that there is an abnormally high-pressure drop across the filters.
- **BREAKER** – An HACR breaker can be factory installed on the gas heat units or cooling units with electric heater.
- **DISCONNECT SWITCH** - A disconnect can be factory installed on cooling only units, sized for the largest electric heat available.
- **ELECTRIC HEAT** - The electric heaters range from 18 kW to 54 kW and are available in all the voltage options of the base units.
- **STAINLESS STEEL HEAT EXCHANGER** – For applications in a corrosive environment, this option provides a full stainless steel heat exchanger assembly.
- **STAINLESS STEEL DRAIN PAN -** Provides years of trouble free operation in corrosive environments.
- **SMOKE DETECTOR** – A smoke detector can be factory mounted and wired in the supply and/or return air compartments.

OTHER PRE-ENGINEERED ACCESSORIES AVAILABLE

- **ROOF CURB** - 14” and 8” high, full perimeter knockdown curb, with hinged design for quick assembly.
- **BAROMETRIC RELIEF DAMPER** – (Unit mounted – Downflow, Duct Mounted – Sideflow) – Contains a rain hood, air inlet screen, exhaust damper and mounting hardware. Used to relieve internal air pressure through the unit during economizer operation.
- **PROPANE CONVERSION KIT** – Contains new orifices and gas valve springs to convert from natural to L.P. gas.
- **–60 °F GAS HEAT KIT** – Provides an electric heat kit for the gas compartment for use in extreme low ambient conditions.
- **ECONOMIZER** (Downflow and Sideflow)
- **POWER EXHAUST** – (Unit mount – Downflow, Duct mount – Sideflow)
- **DUAL ENTHALPY KIT** - Provides a second input to economizer to monitor return air.

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Johnson Controls Unitary Products
5005 York Drive
Norman, OK 73069